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Musci Exotici;

CONTAINING

FIGURES AND DESCRIPTIONS

OF

NEW OR LITTLE KNOWN

FOREIGN MOSSES

AND OTHER

CRYPTOGAMIC SUBJECTS.

BY

WILLIAM JACKSON HOOKER, F.R.A. AND L.S. &c.

VOL. I.

"Quis autem tale studium, quo ad æternam omnium rerum causam evehimur, tamquam inutile ac contemnendum detrectare ac deprimere ausit?"—BRIDEL.

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1818.

TO

JAMES BRODIE OF BRODIE, Esq.

OF BRODIE HOUSE, NORTH BRITAIN,

A GREAT PORTION OF WHOSE LONG AND VALUABLE LIFE HAS BEEN DEVOTED WITH THE MOST ARDENT ENTHUSIASM TO THE CULTIVATION AND ADVANCEMENT OF THE SCIENCE OF BOTANY,

THIS VOLUME IS DEDICATED,

IN MEMORIAL OF

THE UNALTERABLE REGARD AND ESTEEM

OF

THE AUTHOR.

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Edwards Sculp.

Nakiera longirostris.

NECKERA LONGIROSTRIS.

Neckera, caule erecto bipinnato, ramis attenuatis, foliis planis distichis ovatis acutis serratis, nervo prope medium evanescente, operculo longirostro, recto. (TAB. I.)

HAB. regione temperata, in jugis Andium. *Humboldt et Bonpland.*

Radix repens, hic illic dense tomentosa. *Caulis* bi- tri-uncialis, erectus, inferne simplex, superne pinnatim divisus, pinnis iterum sæpe pinnatis, attenuatis. *Folia* (*f.* 2) flavo-viridia, bifaria, disticha, patentia, verticalia, ovata, acuta, apicem versus serrata, nervo satis distincto prope medium evanescente instructa, terminalia magis angusta atque acuminata (*f.* 3). *Perichætialia* (*f.* 4) subulato-lanceolata, integerrima, subenervia, basi imbricata, apicibus squarroso-patentibus. *Setæ* quandoque solitariæ, sæpe tres ad sex ex eodem caule, versus ejus medium insertæ, subbiunciales, erectæ, flexuosæ. *Capsula* ovata, erecta. *Operculum* (*f.* 5) rostratum, rostro recto, capsula subæque longo. *Peristomii dentes ext.* erecti, longiusculi, striati, rubri : *int.* angusti, fere filiformes, perforati, flavi, e membrana reticulata, brevi orti.

Among the *Neckeræ* none of the hitherto described species will accord with that here figured, nor will any of those belonging to *Leskea*, a genus to which it has an almost equal claim.

The plant of all others to which it approaches the nearest in general habit, is doubtlessly *Climacium dendroides* (*Hypnum* nobis); and even in its peristome it is not far removed, for the teeth of the inner fringe are perforated, but not so remarkably as in that plant; and the columella, it may be observed, is not at all exserted.

Fig. 1, 1. Plants *nat. size.* The rest of the figures are more or less magnified.

GRIMMIA FONTINALOIDES.

Grimmia, caule elongato ramoso fluitante, foliis oblongo-ovatis acutis serratis, capsula ovata immersa, operculo plano-mammillato. (TAB. II.)

HAB. In ripa fluminis Brinoci inter Atures et San Fernando, in arboribus quarum radices aquis obtectæ sunt. *Barba de palo* Hispanis nuncupatur. *Humboldt et Bonpland.*

Caules fasciculati, spithamæi ad dodrantales, flexuosi, foliis destituti, ramosi, rami plerumque breves, clavati, quandoque innovationibus elongatis (*f.* 2). *Folia* (*f.* 3) dense imbricata, erectiuscula, subflexuosa, oblongo-ovata, parum concava, acuta, apice serrata, pallide fusco-viridia. *Perichætialia* (*f.* 4, 5, 8) reliquis minora, strictiora, magisque dense imbricata. *Seta* vix ulla. *Capsula* (*f.* 5) minuta, foliis brevior, ovata vel turbinata, erecta. *Operculum* (*f.* 6) planum, centro umbonato. *Peristomium* (*f.* 7) 16-dentatum, dentibus obtusis, plus minusve fissis, pallide fuscis.

This singular species of *Grimmia* has much the habit, as it has the mode of growth, of *Cinclidotus fontinaloides*, or of some species of *Fontinalis* in an injured state. There are no leaves, nor the appearance of there having been any on the main stems, whilst the short lateral branches are thickly terminated by them. These leaves are moreover very thin and membranaceous. The capsule is very small in proportion to the plant, and quite concealed by the perichætial leaves. The teeth are much curved inwards, pale coloured, obtuse, and jagged or cleft, like *Grimmia ovata.*

Tab. II.

Edwards Sculpt.

Fabronia polycarpa.

Edwards Sculpt.

FABRONIA POLYCARPA.

Fabronia, caule repente ramoso, foliis laxis ovato-acuminatis reticulatis integerrimis, nervo brevi, capsula turbinata, operculo conico. (TAB. III.)

HAB. In umbrosis montis Quindiu, ad radices *Quercus Granatensis* juxta la Quebrada de Toche, altit. 1050 hexapod. *Humboldt et Bonpland.*

Caules vix semiunciales, repentes, substellatim ramosi, basin versus radicibus parvis fibrosis instructi (*f.* 2). *Folia* (*f.* 3) undique laxe imbricata, subpatentia, mollia, ovato-acuminata, integerrima, parum concava, reticulata, nervo ante medium evanescente. *Perichætialia* (*f.* 3) magis angusta, enervia. *Setæ* numerosæ, vix tres lineas longæ, erectæ, paululum curvatæ atque incrassatæ, pallidæ, apicem versus attenuatæ (*f.* 2). *Capsula* (*f.* 6) erecta, turbinata, sub-apophysata. *Calyptra* dimidiata (*f.* 5). *Operculum* (*f.* 4) conicum, obtusum. *Peristomium* (*f.* 6, 7) octo-dentatum, dentibus horizontalibus, geminatis, flavis, transversim striatis.

This plant accords so well, not only in habit but also in the general structure of the teeth, with the genus *Fabronia** of Schwaegrichen, that I can have little hesitation in placing it in that genus, to which I would assign the following character: *Seta* lateralis. *Perist.* simplex dentibus 8-geminatis. *Calyptra* dimidiata. Thus will the number of its teeth distinguish it from *Pterogonium*, and the lateral insertion of the fruitstalks from *Octoblepharum*. From the hitherto described species of *Fabronia* the present differs in the entire leaves as well as in the form and texture of the teeth of the peristome.

Fig. 1. Plant *nat. size*. The rest are more or less magnified.

* *Perist.* simplex, dentibus octo parium involutis, *Flores* axillares, gemmiformes. *Sp. Musc. Suppl.* vol. ii. p. 337.

PTEROGONIUM PULCHELLUM.

Pterogonium, caule repente ramoso, foliis undique laxis lanceolato-acuminatis subintegerrimis enervibus, capsula ovato-elliptica, operculo rostrato. (TAB. IV.)

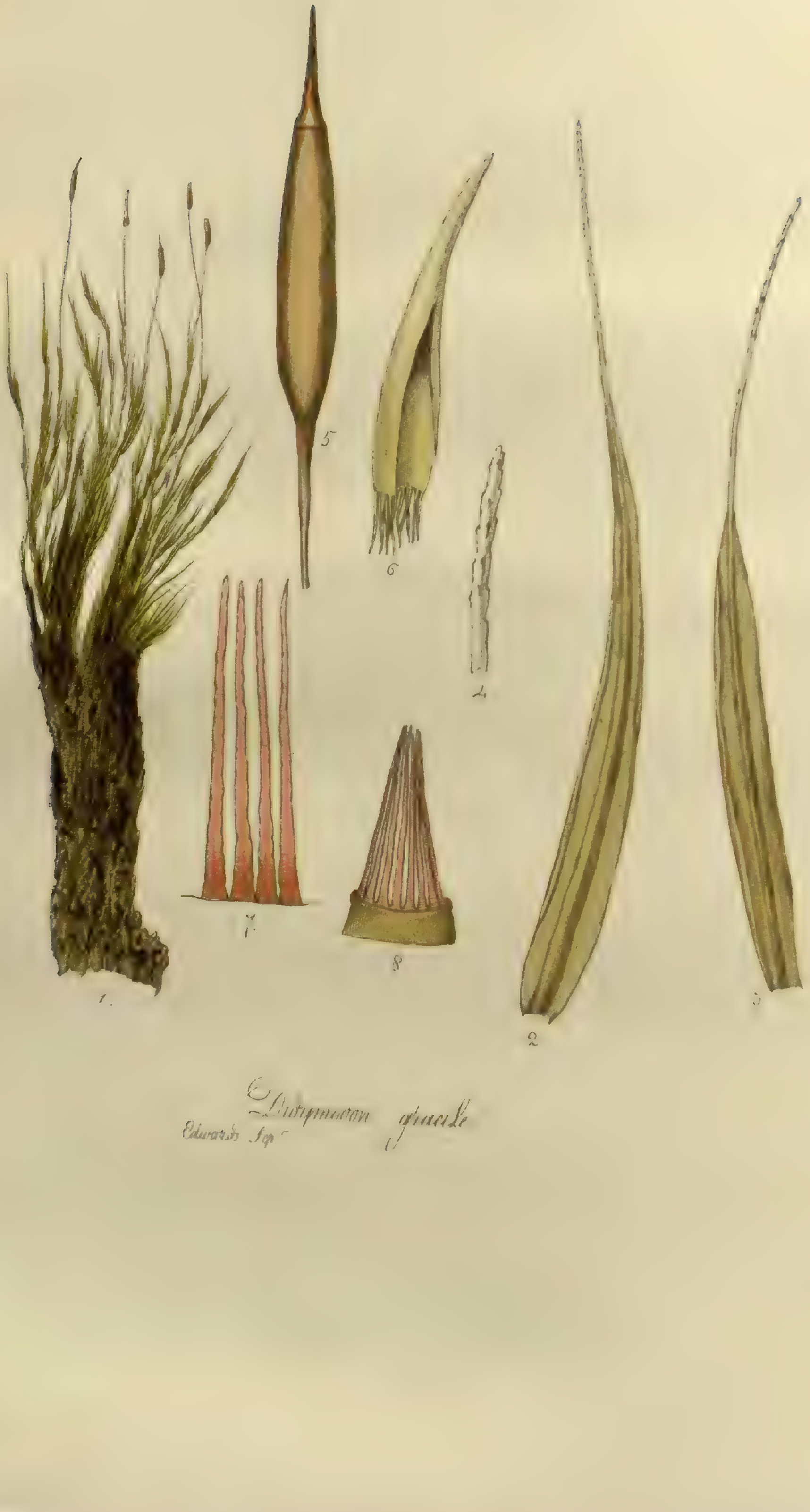
HAB. In umbrosis montis Quindiu, locis altioribus, altitudine 1070 hexapodarum prope *el Moral*, regnum Novum-Granatense. *Humboldt et Bonpland.*

Plantæ laxe cæspitosæ (*f.* 1). *Caules* 3-4-lineares, repentes, ramosi, hic illic radiculosi (*f.* 2). *Folia* (*f.* 3) undique laxe imbricata, patentia, lanceolato-acuminata, obscure serrata, omnino enervia, lutescentia, nitida. *Perichætialia* (*f.* 4) minora, minus acuminata, paululum recurvata, omnino integerrima. *Seta* lateralis, bilinearis, erecta, paululum curvata. *Capsula* (*f.* 5) ovata seu elliptica, rufo-fusca, erecta. *Operculum* suboblique rostratum. *Peristomium* (*f.* 6) 16-dentatum, dentibus acutis, luteis.

Among those species of *Pterogonium* having their nerveless leaves imbricated on all sides of the stem, *Pt. intricatum* and *repens* have many characters in common with the one here figured and described. But besides that this is very much smaller in all its parts (the most minute that I am acquainted with in this genus), its leaves are more patent, and of a singularly bright and shining yellow green.

Fig. 1. Plant *nat. size.* The rest are more or less magnified.

Bryum pendulum



Distichium ghracile
Edwards Sep.

DIDYMODON GRACILE.

Didymodon, caule dense cæspitoso elongato, foliis lanceolato-subulatis, pilo longo colorato terminatis, capsula erecta cylindracea, operculo subulato, calyptra basi ciliata. (TAB. V.)

HAB. In monte Quindiu, regione temperata, Andes de Cundinamara. *Humboldt et Bonpland.*

Caules 3-4-unciales, rigidi, dense cæspitosi, simplices vel divisi, apicibus attenuati (*f.* 1). *Folia* (*f.* 2) erecto-appressa, stricta, vel paululum curvata, rigida, inferiora nigricantia, superiora flavescentia, omnia lanceolato-subulata, acumine longo piliformi colorato, sub lente serrulato (*f.* 4), terminata, nervo latissimo percursa. *Perichætialia* (*f.* 3) his minora, nervo tenuiore. *Seta* sesquiuncialis, erecta, parum flexuosa. *Capsula* (*f.* 5) cylindracea, erecta, intense fusca. *Calyptra* (*f.* 6) subulata, dimidiata, basi ciliata, ciliis longis. *Operculum* subulatum, rectum. *Peristomium* (*f.* 7, 8) sedecim-dentatum, dentibus longis filiformibus, erectis, pallidis, vix per paria approximatis.

I am aware how liable I am to censure in assigning this plant to a genus different from that in which *Dicranum flexuosum* holds a place; since with that it accords so well in habit, in the foliage, and particularly in the fringed base of the calyptra. But with the genus *Dicranum* the more essential character, taken from the peristome, is wholly at variance; and even with *Didymodon* I cannot satisfy myself that the teeth agree in being placed in pairs. The habit however does not materially differ, and the teeth resemble in form those of many *Didymodontes;* and in *Didymodon capillaceum* and *heteromallum* it is not easy to discover the approximation of the teeth in pairs.

Did. gracile has a striking peculiarity, not only in the long and slender, rigid stems, but also in the colour, which below is a deep and shining brown, inclining to black; whilst above it is of a pale and bright yellow hue.

Fig. 1. Tuft *nat. size.* The rest are more or less magnified.

GYMNOSTOMUM MENZIESII.

Gymnostomum, caule subsimplice, foliis oblongo-ovatis apice denticulatis nervosis piliferis, capsula oblongo-clavata subrecurva horizontaliter inclinata, operculo conico, rostro brevi obliquo. (TAB. VI.)

Leptostomum Menziesii. *Brown in Linn. Trans. vol.* 10. *p.* 321.

HAB. Staten Land, prope Cape Horn. *D. Menzies.* 1787.

Caules vix unciam longi, subsimplices, cæspitosi, basi radicibus tomentosis fusco-ferrugineis dense tomentosi. *Folia* pallide viridia, erecta vel erecto-patentia, oblongo-ovata, planiuscula, minute reticulata, margine sæpe recurva, apice denticulata, nervo valido concolore ultra apicem in pilum desinente instructa; *inferiora* breviora. *Seta* 5 ad 6 lineas longa, erecta. *Capsula* oblongo-clavata, paululum subhorizontaliter inclinata, sursum paululum curvata, ore parvo, subincrassato; intra marginem membrana annulari alba. *Operculum* conicum, rostro perbrevi obliquo.

I regret being obliged to differ from so learned and so acute a botanist as Mr. Brown, who in the 10th volume of the Linnæan Transactions has constituted of this and some allied species having a membranous ring to the mouth, the genus *Leptostomum*. But much as I could wish to see the plants he has there brought together (which certainly have a very peculiar habit) separated from the other *Gymnostoma*, yet the doing so would oblige us to remove also *G. Griffithianum*, *G. microstomum*, and some others which have no character in common with the *Leptostoma* of Brown, but the annular membrane; and this is to be discovered with so much difficulty that I believe it would often escape the notice of the most accurate investigators.

Fig. 1, tuft of plants, *nat. size.* Fig. 2, single plant *magn.* Fig. 3, lower leaf. Fig. 4, 4, upper leaves. Fig. 5, portion of a leaf. Fig. 6, portion of a capsule to show the annular membrane. Fig. 8, operculum.

NECKERA ABIETINA.

Neckera, caule erecto pinnato, foliis undique imbricatis appressis striatis subintegerrimis acuminatis, caulinis ovato-deltoideis, rameis ovatis, seta exserta, capsula ovato-cylindracea, operculo subulato. (TAB. VII.)

HAB. In plaga occidentali Americæ Borealis. *D. Menzies*, 1792.

Caules plures ex eadem radice, spithamæi et ultra, erecti, vel curvati, flexuosi, rigidi, inferne indivisi, subaphylli, superne pinnatim ramosi, ramis vix uncialibus, simplicibus, attenuatis. *Folia* amœne viridia, undique imbricata, erecto-appresssa, integerrima, vel, sub lente multum augente solummodo, serrulata, striata, nervo satis valido ad apicem attingente percursa, margine paululum recurvo; *caulina* ovato-deltoidea, acuminata, *ramea* ovata, subacuminata. *Perichætialia* omnino integerrima, enervia, *exteriora* ovato-rotundata, brevi-acuminata, valde concava, *interiora* longiora, pedicellum vaginantia. *Seta* brevis, foliis perichætialibus sub-duplo longior, erecta vel curvata. *Capsula* ovato-cylindracea, erecta, flavo-fusca. *Operculum* subulatum. *Peristomii* dentes *ext.* 16, rubri, transversim striati; *int.* 16, filiformes, flavi, hic illic per trabes uniti, atque basi membrana reticulata connexi.

This plant is a *Neckera* of Hedwig. Should the calyptra, which I have not had the opportunity of seeing, prove mitriform, it will be *Daltonia* of the *Musc. Brit.* It is a truly magnificent species, and very unlike any thing with which I am acquainted.

Fig. 1, plants *nat. size.* Fig. 2, cauline leaf. Fig. 3, ramal leaf. Fig. 4, point of a leaf. Fig. 5, perichætium and capsule. Fig. 6, outer perichætial leaf. Fig. 7, inner ditto. Fig. 8, portion of the peristome.

NECKERA SETOSA.

Neckera, caule erecto ramoso, foliis confertissimis e lata basi subulato-setaceis nervosis, seta perichætio duplo longiore, capsula oblonga erecta, operculo rostrato. (TAB. VIII.)

Anictangium setosum. *Hedw. Sp. Musc. p.* 43. *t.* 5. *Schwægr. Suppl. p.* 37.

HAB. Insulæ Australes. *Hedw.* In sinu Dusky Bay dicto legit *D. Menzies*, 1791.

Caules digitales vel palmares, erecti, flexuosi, sub-pinnatim ramosi, ramis simplicibus sæpe curvatis, inferne denudati. *Folia* confertissima, e lata basi subulato-setacea, serrata, subsecunda, lutescentia, nervo tenui fusco percursa. *Perichætialia* his multo minora, vix serrata. *Setæ* perichætio vix duplo longiores, lineas duas longæ, flexuosæ, sæpe quatuor ad sex prope apicem caulis ramorumque sitæ. *Capsula* oblonga, erecta, rufo-fusca. *Operculum* longe rostratum, rostro curvato. *Peristomium* duplex: *ext.* dentibus erectis, lineari-subulatis, distantibus, rubris; *int.* ciliis 16, flavis, e membrana perbrevi ortis. *Calyptra* deest.

Among the splendid productions of New Zealand Mr. Menzies had the good fortune to discover this fine plant in so perfect a state as to enable us to remove it from *Anictangium*, where it has long held a place, to its proper genus, among which indeed there is none with which it can be confounded. I possess no specimen with a calyptra, but the teeth are truly those of an Hedwigian *Neckera*.

Fig. 1, leaves. Fig. 2, seta, perichætium, capsule, and operculum. Fig. 3, perichætial leaves. Fig. 4, portion of the peristome.—All *magn.*

Tab IX.

Edinburgh Sept.

HYPNUM ELEGANS.

Hypnum, caule procumbente ramoso, foliis distichis ovato-lanceolatis enervibus apice subincurvis compressis, seta basilari, capsula cernua ovata, operculo conico-acuminato. (TAB. IX.)

Apud Nootka, in plaga occidentali Americæ Borealis, legit *D. Menzies*, 1787.

Caulis sesquiuncialis, procumbens, vage ramosus. *Folia* flavo-virescentia, subnitida, bifaria, disticha, compressa, horizontaliter patentia, ovato-lanceolata, concava, enervia, apice solummodo serrulata, secunda. *Perichætialia* ovata, longe acuminata. *Seta* caulis inferiore parte inserta, vix unciam longa, erecta, flexuosa, apice incurva. *Capsula* ovata, cernua. *Operculum* conico-acuminatum. *Peristomii* dentes *ext.* rubri; *int.* flavi, segmentis ciliis interpositis.

A species in habit bearing no inconsiderable resemblance to *H. pulchellum* (*Leskea*, Sp. Musc.) and *Silesianum*, but differing from the former in the leaves being serrated at the points; and from the latter in the points alone being serrated, and from both by the singularly drooping capsules.

Fig. 1, branch *magn.* Fig. 2, leaves. Fig. 3, perichætium. Figs. 4 and 5, leaves of ditto. Fig. 6, seta and capsule. Fig. 7, operculum. Fig. 8, exterior peristome. Fig. 9, interior ditto.

HYPNUM SUBBASILARE.

Hypnum, caule suberecto; foliis bifariam imbricatis oblongo-lanceolatis serratis, nervo sub summum apicem evanescente, capsula oblonga pendula. (TAB. X.)

HAB. Staten Land, prope Cape Horn. *D. Menzies*, 1787.

Caulis biuncialis, simplex, vel innovationibus ramosus, ascendens, basi denudatus atque radicibus tomentosis obsitus. *Folia* undique inserta, sed bifariam spectantia, plerisque horizontalia, oblongo-lanceolata, planiuscula, reticulata, subflexuosa, margine superne præcipue dentato-serrata, nervo tenui sub apicem evanescente instructa. *Color* olivaceo-viridis, nervi fuscescens. *Perichætialia* exigua, enervia. *Seta* caulis basin versus inserta, bi-triuncialis, flexuosa, nitida. *Capsula* cernua, oblonga. *Peristomium* exiguum, *ext.* dentibus flavo-rufescentibus; *int.* membrana reticulata, flava, laciniata, segmentis ciliis 2 vel 3 interpositis.

The general habit of this moss resembles that of *Hypnum spiniforme*, and that of the leaves, at least as far as regards their insertion and direction, may be compared to that of *H. riparium*; the plant, however, is totally different from either. The leaves are reticulated, but not so much so as in the genus *Splachnum*. The fruitstalk, which is long, flexuose, and shining, arises from near the base of the stem; the capsule is very drooping; the peristome small, and the inner one that of a *Hypnum*.

Fig. 1, part of the stem *magn.* Fig. 2, 2, leaves. Fig. 3, capsule. Fig. 4, exterior peristome. Fig. 5, interior ditto.—All *magn.*

1. *Hypnum salebrosum*

Edwards Sculp.

Tab XI

Jungermannia nobilis

Edwards Sculp.

JUNGERMANNIA NOBILIS.

Jungermannia, caule suberecto flexuoso; foliis arcte bifariam imbricatis horizontalibus inæqualiter bilobis, lobis ovatis ciliato-dentatis conduplicatis verticalibus, stipulis rotundatis emarginatis ciliatis; calyce oblongo compresso, ore laciniato, laciniis ciliato-dentatis. (TAB. XI.)

HAB. Dusky Bay, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caulis palmaris ad spithamæum, pennæ corvinæ crassitie, sublignosus, nigro-fuscus, flexuosus, *inferne* procumbens, denudatus, atque subramosus, radicibus tomentosis fuscis obsitus, *superne* erectus, foliosus. *Folia* maxima hujusce generis, dense bifariam imbricata, horizontalia, flavo-virescentia, reticulata, areolis parvis oblongis, inequaliter biloba, lobis *anterioribus* majoribus, omnibus ovato-subacuminatis, flexuosis, conduplicatis, verticalibus, dentato-ciliatis, ciliis basi superne longioribus. *Stipulæ* majusculæ, rotundatæ, planæ, apice emarginatæ, marginibus ciliatis. Quod autem in hoc specie præter spem evenit, foliorum singulorum ad axillas reperiuntur foliola quatuor aut plura perpusilla, rigidiuscula, dentata, erecta, in cæspitulum appressa, quæ an floribus masculis includendis an cuilibet alii usui inserviant nihil sane compertum habeo, nec licet aliquid certe augurari. *Calyx*, ratione plantæ, parvus, foliis fere obtectus, oblongus, paululum longitudinaliter plicatus, ore aperto, laciniato, laciniis ciliato-dentatis. *Seta* vix uncialis, succosa, alba. *Capsula* oblonga, fusca, quadrivalvis, valvis linearibus.

This noble species has the lower part of the stem resembling the creeping stipes of many Ferns, and is equally black and rigid. The superior part alone is leafy, and the leaves are not much unlike those of some of the varieties of *J. nemorosa*; but the stipules, which are large and as beautifully ciliated as any part of the leaves, will keep the two species far removed in an *artificial* system. The axillary tufts of leaflike processes are confined, as far as I have had the opportunity of observing, to this species.

Fig. 1, plant *nat. size*. Fig. 2, calyx and leaves. Fig. 3, portion of the stem, with the stipules. Fig. 4, portion of a leaf —*magn.*

Musci Exotici.

TORTULA PILIFERA.

Tortula, caule elongato valde ramoso, foliis lanceolatis margine revolutis, nervo in pilum longum desinente, perichætialibus vaginantibus, capsula cylindracea, operculo subulato. (Tab. XII.)

Ex Java a *Dicksono* recepi.

Caulis uncialis vel biuncialis, erectus, valde ramosus; ramis dichotomis, interruptim foliosis. *Folia* sordide viridia, undique sparsa, erecto-patentia, lanceolata, integerrima, margine insigniter revoluta, nervo ultra apicem in pilum longum diaphanum producto instructa. *Perichætialia* setæ basin arcte vaginantia, ovato-attenuata, nervo percursa, *int.* multo majora, longiora. *Seta* uncialis, flexuosa, rufo-flavescens, per innovationes caulis lateralis. *Capsula* cylindracea, amœne fusca. *Operculum* subulatum, capsula brevius. *Peristomium* longum, e ciliis spiraliter tortis, ad basin divisis, rubris.

This fine *Tortula* has, like *T. convoluta* and *T. revoluta*, the perichætial leaves differing remarkably from the rest in figure, and sheathing the base of the fruitstalk. With the last-mentioned species, too, it agrees in having leaves with revolute margins; but here, besides the much larger and branched stems of the plant, the leaves have a long hairlike point, which is a continuation of the nerve.

Fig. 1, plants *nat. size*. Fig. 2, perichætium, fruitstalk, capsule, and operculum. Fig. 3, upper side of a leaf. Fig. 4, inferior side of ditto. Fig. 5, outer perichætial leaf. Fig. 6, inner ditto. Fig. 7, capsule with its peristome—*magn.*

Tab. XII.

Festuca fulgens

Jungermannia flabellata

Edward. del.

JUNGERMANNIA FLABELLATA.

Jungermannia frondibus suborbiculatis palmatis dichotome radiatis nervosis, marginibus integerrimis, fructu in dichotomiarum axillis, calyce duplice, *ext.* brevi bilabiato, *int.* oblongo-cylindraceo, ore laciniato. (TAB. XIII.)

Jungermannia flabellata. *Labill. Fl. Nov. Holl. v.* 3. *p.* 109. *t.* 254. *f.* 1.

HAB. In capite Van Diemen. *Labillardière.* In sinu Dusky Bay dicto in Nova Zeelandia. *D. Menzies,* 1791.

Caudex horizontaliter repens, nigro-fuscus, radicibus tomentosis hic illic obsitus. *Stipes* biuncialis, erectus, flexuosus, subcompressus, fuscus. *Frons* fusco-viridis, membranacea, pulcherrime reticulata, palmata, segmentis linearibus, dichotomis, dichotomiarum angulis patentibus, radiato-expansis, ita ut frondis totius ambitus sit subrotundus, margine integerrimis, apice obtusis, nervo fusco, validiusculo percursis. *Fructificatio* in dichotomiarum axillis. *Calyx* duplex, *ext.* perbrevis, bilabiatus, labiis patentibus: *int.* oblongo-cylindraceus, carnoso-membranaceus, ore aperto, brevi-laciniato, laciniis denticulatis. *Seta* subsesquiuncialis. *Capsula* 4-valvis, valvis linearibus, apice filamenta spiralia, longa, ex helice duplice constantia, gerentibus.

There can be, I think, no doubt of this being the *J. flabellata* of Labillardière, although I cannot find that the exterior calyx in my specimens accords with what he has represented. With respect to the shortness of the interior calyx, as described by M. Labillardière, that is in consequence of its being in a young state, for he was not acquainted with the perfect fructification. As in *J. Lyellii* and *hibernica* (with which this plant has many points in common), this part increases in size as the fructification advances.

Fig. 1, plant *nat. size.* Fig. 2, portion of the frond. Fig. 3, double calyx. Fig. 4, spiral filaments.—*magn.*

JUNGERMANNIA HYMENOPHYLLUM.

Jungermannia frondibus palmatis dichotomis nervosis, marginibus denticulatis, fructu in dichotomiarum axillis, calyce duplice, *ext.* squama exigua dentata, *int.* oblongo-cylindraceo, ore dentato. (TAB. XIV.)

HAB. In sinu Dusky Bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Caudex horizontalis, repens, flexuosus, tomentosus, fuscus. *Stipes* vix unciam longus, erectus, flexuosus, compressus. *Frons* membranacea, fusco-viridis, pulcherrime reticulata, palmata, segmentis dichotomis, erecto-patentibus, linearibus, apice obtusis, sæpe emarginatis, marginibus denticulis distantibus instructa, nervo valido, fusco percurrente. *Fructificatio* in dichotomiarum axillis. *Calyx* duplex: *ext.* squama parva, rotundata, ciliato-dentata, appressa: *int.* oblongo-cylindracea, carnoso-membranacea, ore aperto, ciliato-dentato. *Capsulam* non vidi.

Although at first sight this may appear very near to *J. flabellata*, there are nevertheless abundant points of distinction. The stipes is shorter and the fronds longer. These latter have never their segments so numerous, nor are they spread out so as to form an orbicular outline: add to these the distinctly toothed margins of the frond and the differently shaped exterior calyx.

The great similarity of this plant to *Hymenophyllum Tunbridgense*, no less than its membranous texture, has suggested the specific name.

Fig. 1, plant *nat. size*. Fig. 2, portion of the frond. Fig. 3, exterior calyx. Fig. 4, double calyx.—*magn.*

Jungermannia Hymenophyllum

Edwards Scp.

Tab XV

Jungermannia appendiculata.

Edwards Sculp.

JUNGERMANNIA APPENDICULATA.

Jungermannia caule suberecto, foliis dense bifariam imbricatis horizontalibus inæqualiter bilobis, lobis verticalibus ovatis, posterioribus apicem versus pinnato-incisis serratis, anterioribus serratis posterioris lobi paginæ affixis. (TAB. XV.)

HAB. Dusky Bay, in Nova Zeelandia. *D. Menzies*, 1791.

Caulis spithamæus, basi procumbens, dein erectus, flexuosus, niger, sublignosus, inferne denudatus. *Folia* maxima, arcte bifariam imbricata, horizontalia, flavo-viridia, areolis parvis rotundatis reticulata, biloba, lobis verticalibus, subundulatis, inæqualibus, *posterioribus* majoribus, ovatis, planis, apicem versus pinnato-incisis, segmentis ovatis, marginibus serratis: *anterioribus* minoribus non margine posterioribus lobi affixis, sed paginæ superiori infra medium, ut per iconem est videri, longitudinaliter accretis, convexis, ovatis, acutis, simpliciter serratis. *Stipulæ* rotundatæ ad basin fere fissæ, segmentis ovatis, marginibus recurvis, ciliatis laciniatisque. *Calyx* cyathiformis, subplicatus, ore longe-laciniato, laciniis spinoso-dentatis. *Seta* vix biuncialis. *Capsula* 4-valvis, valvis linearioblongis.

This Jungermannia is one of the most striking in point of size, and the most singular in structure, of any in the rich Menziesian collection. It is full as large as the *J. nobilis* (already figured), to which it bears at first sight no inconsiderable resemblance. But here the leaves have the lesser lobe, not a continuation or expansion of the *margin* of the larger one, as in that species, in *J. nemorosa* and many others; but it actually grows out (if I may use the expression) of its superior surface; and the larger lobe itself, particularly towards the extremity, is cut into segments so deeply and regularly as to be almost pinnated.

Fig. 1, plant *nat. size*. Fig. 2, leaves. Fig. 3, portion of ditto. Fig. 4, stipule. Fig. 5, calyx.—*magn.*

JUNGERMANNIA SACCATA.

Jungermannia caule procumbente, ramis erectis, foliis bifariis ovato-quadratis denticulatis, fructu terminali, calycibus oblongis carnosis pendulis. (TAB. XVI.)

HAB. In sinu Dusky Bay dicto. *D. Menzies*, 1791.

Caules repentes, flexuosi, radiculosi, ramosi. *Rami* erecti, flexuosi, apice, in fertilibus, incurvi, simplices, subtripollicares, basi denudati, superne foliosi. *Folia* distantia, bifaria, disticha, ovato-quadrata, horizontalia, subverticalia, planiuscula, subrecurva, basi decurrentia, margine superne denticulata, inferne integerrima. *Calyx* in apicem ramorum situs, oris margine hinc affixus, oblongus, pendens, carnosus, ore parvo, subcontracto, foliaceo, prope marginem macula rotundata, in qua pistilla reperiuntur. *Corolla* nulla. *Seta* longa, digitalis et ultra, alba, succulenta, medium versus incrassata. *Capsula* quadrivalvis, valvis linearibus.

We have among our British *Jungermanniæ* two species (viz. *J. viticulosa* and *J. trichomanis*), which have calyces pendent on the stalk; but then they are buried in the ground, or in the mosses and other plants among which they may happen to grow. In the present instance the calyx grows from the extremity of an erect stem, or which is curved only, as it would appear, from the weight of the fructification, and there is pendulous. On the exterior surface of this calyx, near the mouth, is a cluster of pistilliform bodies, apparently covered by a membrane, and these are present at the same time with the perfect capsule. In the foliage and stems this plant has great affinity with *J. asplenioides*.

Fig. 1, plant *nat. size*. Fig. 2, leaves. Fig. 3, portion of ditto. Fig. 4, calyx dissected. Fig. 5, pistilliform bodies.—*magn.*

Juniperomannia succulenta.

Edward. Sp:

Leucosia calyptrata

Edwards Sculp.

LEUCODON CALYCINUS.

Leucodon caule repente, ramis erectis subsimplicibus, foliis ovato-lanceolatis concavis lævibus, nervo attingente, perichætialibus setam omnino vaginantibus obtusiusculis enervibus, capsula oblongo-cylindracea curvata strumosa, ore obliquo, operculo subulato, basi gibboso. (TAB. XVII.)

HAB. In sinu Dusky Bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caulis horizontaliter repens, hic illic radiculosus. *Rami* erecti, plerumque simplices, teretes, clavati, apice acuti. *Folia* densissime imbricata, erecta, ovato-lanceolata, valde concava, nigro-viridia, nitida, lævia, margine integerrima, superne involuta, nervo ad apicem attingente. *Perichætialia* notabilia, in tubum subcylindraceum arcte convoluta, ita magna ut totam setam includant, ovata, obtusiuscula, enervia, flavo-viridia, basi aurantia. *Seta* lateralis, semiunciam longa. *Capsula* nigro-fusca, exserta, inclinata atque curvata, oblongo-cylindracea, basi strumosa, ore obliquo. *Peristomii* dentes 16, rubri, profunde bifidi, transversim striati. *Operculum* subulatum, basi gibbosum. *Calyptra* mitriformis pallide fusca, glabra, apice scabra, basi subsexfida.

Those mosses having the peristome of a *Trichostomum* or *Didymodon*, and *lateral* fruit, were formed by Schwaegrichen into the genus *Leucodon*. This we adopted with much satisfaction in the *Musc. Brit.*; but being then acquainted with only one species, we subjoined to the character "*a dimidiate calyptra*," which that individual possessed. Here we have a species with the same distinguishing marks, except that the calyptra is *mitriform*. For the present, however, I shall suffer it to remain with *Leucodon*; and if during the progress of this little work I see the same reason to consider the different form of the calyptra as essential in distinguishing genera as I do now, I shall constitute of this and of an allied species from New Holland (*L. rugosus*, MS.) a genus under the name of *Lyellia*.

Fig. 1, 1, plant *nat. size.* Fig. 2, leaf. Fig. 3, perichætium, capsule, and operculum. Fig. 4, perichætial leaf. Fig. 5, inner ditto. Fig. 6, capsule. Fig. 7, teeth of peristome. Fig. 8, calyptra.—*magn.*

BRYUM BARTRAMIOIDES.

Bryum caule elongato erecto subsimplice, foliis subulato-setaceis rigidis denticulatis, nervo ad apicem attingente, seta perichætio immersa, capsula late ovata erecta. (TAB. XVIII.)

HAB. In sinu Dusky Bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caules solitarii vel bini ex eadem radice, digitales ad spithamæos, erecti, flexuosi, inferne denudati, simplices vel nunc innovationibus divisi. *Folia* bi- tri-linearia, sparsa, undique imbricata, erecto-patentia, subulato-setacea, rigida, fusco-viridia vel etiam rufo-fusca, margine denticulata, nervo valido, fusco ad apicem attingente. *Seta* vix duas lineas longa, foliis obtecta, paululum curvata. *Capsula* late ovata, erecta, fusco-flavescens. *Peristomium* duplex: *ext.* dentibus 16, lanceolato-acuminatis, rubris transversim striatis, intus denticulatis, marginibus pellucidis, flavescentibus; *int.* membrana reticulata, flava, 16-laciniata, segmentis ciliis duobus interpositis.

Few persons, I apprehend, on first looking at this plant would suspect the genus to which it belongs; for it is quite an anomaly among the *Brya* to have a capsule immersed in the leaves of the perichætium. Yet such is the case in the present instance: and on a *closer* inspection the rigid toothed leaves have some affinity with those of the genus *Timmia*; though certainly a much closer one with *Bartramia*. The fruit is truly terminal, appearing otherwise only from a prolongation of a shoot immediately below its point of insertion.

Fig. 1, 1, plants *nat. size*. Fig. 2, leaf. Fig. 3, point of ditto. Fig. 4, seta and capsule. Fig. 5, portion of peristome. —*magn.*

Tab XVIII.

Bragum barbatum

Edwards sculp.

Tab. XIX.

Barbamia tomentosa.

Edwards Sculp.

BARTRAMIA TOMENTOSA.

Bartramia caule subpinnatim fasciculatimque ramoso, foliis ovato-lanceolatis longe acuminatis serrulatis striatis nervo attingente, seta longa recta demum laterali, capsula horizontali ovato-rotundata sulcata. (TAB. XIX.)

Mnium tomentosum. *Swartz Prodr. p.* 139. *Fl. Ind. Occ. p.* 1837.

HAB. ad latera sylvarum in montibus altissimis Jamaicæ. *Swartz.*

Caules tomento ferrugineo densissime obsiti, digitales ad palmares, vage ramosi, ramis hic illic tomentosis, subpinnatim divisis, sæpe fasciculatis, gracilibus. *Folia* dense imbricata, horizontaliter patentia, subrecurva, nitida, flavescentia, ovato-lanceolata, longe acuminata, serrulata, striata, margine inferne subincrassata, nervo tenui, percursa. *Seta*, per innovationes caulis, lateralis, unciam longa, erecta, stricta. *Capsula* magna, horizontalis, ovato-rotundata, sulcata, fusca. *Peristomii* dentes *ext.* 16, breviusculi, transversim striati, fusco-rubri: *int.* membrana crassiuscula, reticulata, 16-laciniata, laciniis bifidis, transversim striatis, non raro segmentis iterum apice fissis, atque linea media longitudinali notatis.

We are unwilling to lose the opportunity of figuring this beautiful plant, which was first made a *Mnium* and then a *Bryum* by the excellent Swartz; and afterwards was considered by Schwaegrichen as a synonym to *Bartramia arcuata*, from which the great length of the footstalk, its erect (never curved) direction, and the decidedly sulcated capsule will always keep it distinct.

Fig. 1, plant *nat. size*. Fig. 2, leaf. Fig. 3, capsule. Fig. 4, teeth of *ext.* peristome. Fig. 5, teeth of *int.* ditto,—*magn.*

Musci Exotici.

LEUCODON RUGOSUS.

Leucodon caule repente, ramis erectis subsimplicibus, foliis ovato-lanceolatis transversim rugosis, nervo attingente, perichætialibus setam omnino vaginantibus attenuatis nervosis, capsula cylindracea erectiuscula striata, ore horizontali, operculo subulato. (Tab. XX.)

Hab. In Nova Hollandia. Turn. Herb. a *Dicksonio* missus.

Caulis repens, valde ramosus, ramis erectis, simplicibus vel innovationibus rarius divisis, teretibus, incrassatis, apice obtusis. *Folia* densissime imbricata, erecto-patentia, ovato-lanceolata, concava, fusco-lutescentia, nitida, transversim rugosa, margine integerrima, superne involuta, nervo distincto ad apicem attingente instructa. *Perichætialia* magna, flavescentia basi aurantiaca, nervo distinctissimo, a basi ad apicem usque attingente, instructa: *ext.* minora, late ovata, anguste attenuata; *int.* longissima, setam superantia atque vaginantia, apice attenuata. *Setæ* laterales, non raro binæ ex eodem perichætio. *Capsula* rufo-fusca, cylindracea, erecta, vel leniter inclinata, stricta, estrumosa, ore transverso. *Operculum* subulatum. *Peristomii* dentes 16, flavo-rufescentes, graciles, transversim striati, profunde bifidi, segmentis linea media longitudinali notatis iterumque apice divisis.

Under *Leucodon calycinus* I noticed a New Holland species, which is here represented. Besides its larger size, its thicker branches, yellower colour and rugose leaves, it differs in the straight capsule, which is destitute of any struma; in the horizontal (not oblique) mouth; in the lid, which wants the gibbosity at the base; and above all in the perichætial leaves, which besides being much attenuated at the extremity are furnished with as distinct a nerve as those of the stem.

Fig. 1, plant *nat. size.* Fig. 2, leaf. Fig. 3, perichætium and capsules. Fig. 4, exterior perichætial leaf. Fig. 5, inner ditto. Fig. 6, teeth of peristome,—*magn.*

Tab. XX.

Senecio rugosus.

Bartramia pendula.

Edwards Sc.

BARTRAMIA PENDULA.

Bartramia caule subpinnatim fasciculatimque ramoso, foliis ovato-lanceolatis longe acuminatis serrulatis striatis, nervo attingente, seta longa recta demum laterali, capsula oblongo-cylindracea sulcata pendula. (TAB. XXI.)

Mnium pendulum. *Smith in Linn. Trans. v. 7. p.* 262.

HAB. In sinu Dusky Bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Caules tomento ferrugineo dense obsiti, 3-4 unciales, ramosi, ramis sparsis gracilibus apice subfasciculatis. *Folia* dense imbricata, horizontaliter patentia, subrecurva, nitida, flavescentia, ovato-lanceolata, longe acuminata, sub lente serrulata, striata, margine inferne subincrassata, nervo tenui percursa. *Seta* sesquiuncialis, erecta, flexuosa, rubra, terminalis, demum, per caulis innovationes, lateralis. *Capsula* ovato-cylindracea, rufo-fusca, sulcata, pendula. *Operculum* planiusculum. *Peristomii* dentes *ext.* 16, rubri, transversim striati; *int.* membrana 16-laciniata, flava, laciniis transversim striatis, bifidis.

This comes under Sir James Smith's *Mnium*, as characterized in the Linnæan Transactions (vol. vii.); but surely it is contrary to nature to separate this from the genus of *Bartramia tomentosa* and *arcuata*, merely because of the more oblong form of the fruit. With the two species now mentioned this has the closest affinity; so much so that I believe no other character than the shape of the capsule and relative length and direction of the fruitstalk can be found to distinguish them. This, too, has truly the peristome of a *Bartramia*.

Fig. 1, plant *nat. size*. Fig. 2, leaf. Fig. 3, capsule. Fig. 4, portion of *ext.* and *inner* peristome. Fig. 5, portion of inner ditto.

GYMNOSTOMUM GRACILE.

Gymnostomum caule cæspitoso subramoso foliis ovato-lanceolatis integerrimis nervosis longe piliferis, capsula oblongo-cylindracea pendula, operculo hemisphærico, mutico. (TAB. XXII.)

Leptostomum gracile. *Brown in Linn. Trans. v.* 10. *p.* 321.

HAB. In sinu Dusky Bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Caules semiunciales, simplices vel divisi, inferne radicibus tomentosis fuscis obsiti. *Folia* erecto-patentia, ovato-lanceolata, integerrima, *inferiora* acuminata, *superiora* obtusiuscula, omnia nervo in pilum longum ultra apicem producto instructa. *Seta* biuncialis, gracilis, flexuosa. *Capsula* oblongo-cylindracea, pendula, ore intus membrana annulari alba. *Operculum* hemisphæricum, obtusum.

I have stated my reasons for not adopting the genus *Leptostomum* under *Gymnostomum Menziesii* (TAB. VI.), a species near to which this ought certainly to rank, although it differs abundantly in the shape and direction of the capsule and the entire leaves. In this plant, too, the hair-like points of the leaves are much longer.

Fig. 1, 1, plants *nat. size.* Fig. 2, lower leaf. Fig. 3, upper ditto. Fig. 4, capsule. Fig. 5, mouth of ditto, showing the membranous ring.—*magn.*

Gymnostomum gracile.

Edmonds Sep!

Nechera planifolia.

Edwards Sculp.

NECKERA PLANIFOLIA.

Neckera caule erecto pinnato, foliis bifariam imbricatis late ovatis acutis enervibus serrulatis, seta longe exserta, capsula cylindracea, operculo subulato. (TAB. XXIII.)

Neckera planifolia. *Hedw. Sp. Musc. t.* 48. *f.* 1—3.

HAB. Insulæ Australes. *Hedwig.* In sinu Dusky Bay dicto. *D. Menzies*, 1791.

Caulis digitalis vel palmaris, inferne repens, ferrugineo-tomentosus, demum erectus, rigidus, basi apiceque indivisus, medium versus pinnatim ramosus, ramis simplicibus, compressis, planis. *Folia* majuscula, pallide viridia, nitentia, bifariam imbricata, late ovata, acuta, planiuscula, serrulata, enervia vel basi solummodo obsoletissime uninervia, indistincte striata vel plicata. *Perichætialia* his multo minora, margine serrulata, enervia; *ext.* ovata, brevi-acuminata, concava; *int.* longe acuminata, vaginata. *Seta* perichætialibus multo longior, subuncialis, erecta vel curvata. *Capsula* erecta, cylindracea, intense fusca. *Operculum* subulatum, capsula plusquam dimidio brevius. *Calyptra* subulata, dimidiata. *Peristomii* dentes *ext.* 16, longi, filiformes, transversim striati, rubri; *int.* totidem, setacei, flavi, hic illic denticulati, basi membrana connexi.

The very perfect state of the specimen of this plant gathered by Mr. Menzies has induced me to figure it, although already represented by Hedwig in his *Species Muscorum*. But there the leaves are erroneously given entire, and the peristome appears to have been unknown to the author.

Fig. 1, plant *nat. size.* Fig. 2, 2, leaves. Fig. 3, perichætium and calyptra. Fig. 4, *ext.* perichætial leaf. Fig. 5, *int.* ditto. Fig. 6, capsule and operculum. Fig. 7, portion of *ext.* peristome. Fig. 8, portion of *int.* ditto.—*magn.*

ORTHOTRICHUM LONGIPES.

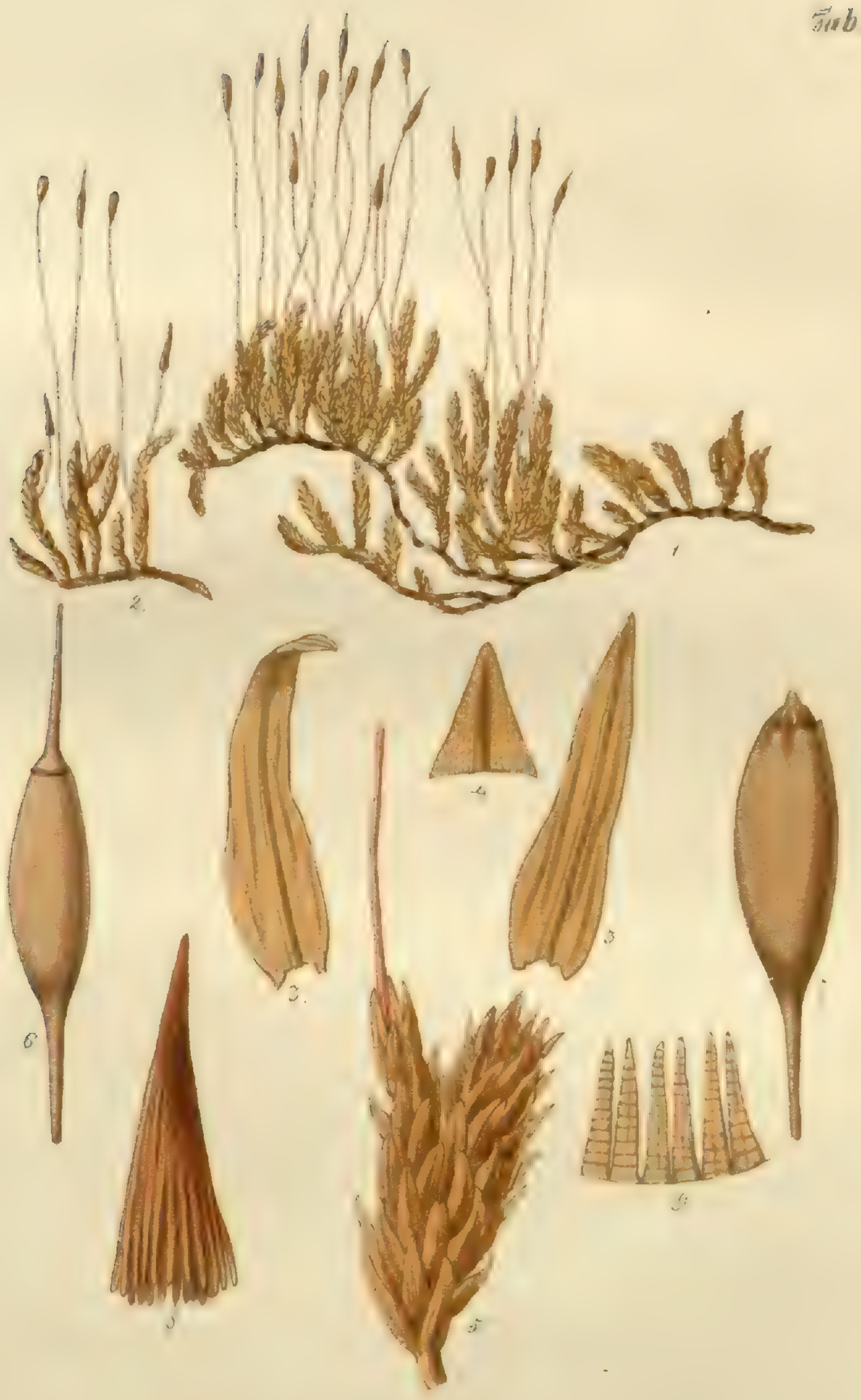
Orthotrichum caule procumbente, ramis erectis, foliis ovato-lanceolatis striatis siccitate tortis, seta longissima, capsula ovali-elliptica lævi, calyptra glabra multifida, ciliis nullis, dentibus 16 per paria approximatis. (Tab. XXIV.)

Hab. In sinu Dusky Bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Caulis procumbens, valde ramosus. *Rami* vix unciam longi, erecti, simplices vel divisi. *Folia* undique denseque imbricata, erecto-appressa, apice subincurva, siccitate spiraliter torta, aureo-flavescentia, subnitentia, lanceolata, obtusiuscula, striata vel etiam subplicata, sub lente minute punctata, margine integerrima, nervo valido fusco, sub summum apicem evanescente, instructa. *Perichætialia* his simillima sed paululum angustiora, estriata. *Setæ* terminales, numerosæ, sed sæpissime, ex caulis innovationibus, laterales, biunciales, erectæ, flexuosæ, rubræ. *Capsula* oblongo-elliptica, sordide fusca, lævis vel ad oris marginem solummodo sulcata, erecta. *Operculum* subulatum, strictum, capsula vix brevius, flavescens. *Calyptra* glabra, mitriformis, castanea, usque ad apicem sulcata, basi ad dimidiam partem in segmenta angusta numerosa fissa. *Peristomium* simplex, 16-dentatum, dentibus longiusculis per paria approximatis, pallidis, transversim obscure striatis atque linea media longitudinali notatis, erectis vel declinatis.

On the first aspect of this plant I conceived that it and some other Australasian individuals with the same habit would have belonged to the genus *Sclotheimia* of Bridel and Schaegrichen; but after the most minute investigation I am unable to detect any internal peristome (though I think that the columella, which before the ripening of the capsule is exserted, might by a casual observer be mistaken for one), or any character which can induce me to keep it distinct from *Orthotrichum*, many of which, as is sufficiently well known, have only a single peristome.

Fig. 1, plant when moist. Fig. 2, ditto, when dry, *nat. size.* Fig. 3, 3, leaves. Fig. 4, apex of ditto. Fig. 5, portion of a branch and perichætium. Fig. 6, capsule. Fig. 7, ditto, with the operculum. Fig. 8, ditto, showing the peristome. Fig. 9, portion of the peristome.—*magn.*



Pithecodium [illegible]

Fittbrichum longirostrum.

Edwards sculp.

ORTHOTRICHUM LONGIROSTRUM.

Orthotrichum caule repente, ramis erectis, foliis lanceolato-acuminatis striatis siccitate tortis, seta longa, capsula ovali-elliptica sulcata, calyptra glabra multifida, ciliis nullis, dentibus 16 vix per paria approximatis. (TAB. XXV.)

HAB. In sinu Dusky Bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Caulis repens, ramosus, ramis erectis, simplicibus vel divisis. *Folia* aureo-lutescentia, nitoris expertia, undique denseque imbricata, erecto-patentia, siccitate torta, lanceolata, acuminata, integerrima, longitudinaliter plicata, sub lente punctata. *Perichætialia* reliquis similia, sed plicis nullis. *Setæ* numerosæ, semiunciam longæ, erectæ, flexuosæ, flavescentes. *Capsula* ovato-elliptica, siccitate præcipue longitudinaliter sulcata, rufofusca. *Operculum* subulatum, *capsula* subæque longum. *Calyptra* badia, striata, glabra, mitriformis, a basi usque ad medium in lacinias longas tenues fissa. *Peristomium* simplex, 16-dentatum, dentibus vix per paria approximatis, madore erectis vel declinatis, siccitate reflexis, sordide flavis, transversim striatis, linea media longitudinali notatis.

This is another species with the same habit as that figured at TAB. XXIV., and with the same remarkable calyptra. A similar calyptra Mohr has attributed to a moss which he says is nearly related to *Anictangium cirrosum* of Hedwig, and to another from Oronoko; but in both these, which he has included in his genus *Ulota*, there is an inner fringe exactly as in *Neckera*. The present plant differs from *O. longipes* in the lengthened narrow leaves, the shorter fruitstalks, and distinctly sulcated capsules.

Fig. 1, plant *nat. size*. Fig. 2, leaf. Fig. 3, point of ditto. Fig. 4, capsule with the operculum. Fig. 5, capsule with the peristome. Fig. 6, calyptra. Fig. 7, portion of peristome. —*magn.*

TORTULA MEMBRANIFOLIA.

Tortula subacaulis, foliis late ovatis membranaceis (albis) longe piliferis, nervo (viridi) latissimo, capsula oblonga, operculo rostrato. (TAB. XXVI.)

HAB. Sepibus lapidibusque regionis aridæ Orotavæ, Teneriffæ. *Prof. C. Schmidt*, 1815.

Radix dense cæspitosa, tomentosa, fusca. *Caulis* vix ullus. *Folia* late ovata, concava, imbricata, erecta, membranacea, alba, margine integerrima, subundulata, apice in pilum longum desinentia, nervo viridi latissimo ad basin pili attingente instructa. *Seta* semiunciam longa, erecta, flexuosa. *Capsula* suberecta, oblonga. *Operculum* rostratum, rostro curvato. *Peristomium* rubrum, e ciliis per totam longitudinem divisis, spiraliter tortis constans.

This is one of the many interesting discoveries made by Professor Schmidt in the Canary Isles, whence he returned in the year 1815, to embark in the ill-fated expedition to explore the sources of the Zaire. He made the request that I would give his cryptogamic plants to the public in some shape or other.

Fig. 1, plants *nat. size.* Fig. 2, single plant. Fig. 3, 3, 3, 3, leaves. Fig. 4, capsule.—*magn.*

Tortula membranifolia

Tab XXVIII.

Catharinaea gracile

ORTHOTRICHUM GRACILE.

Orthotrichum caule erecto elongato ramoso, foliis lanceolato-subulatis flexuosis, siccitate tortis, seta breviuscula, capsula ovata glabra, calyptra glabra multifida, ciliis nullis, dentibus 16 vix per paria approximatis. (TAB. XXVII.)

HAB. In sinu Dusky Bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Caules 3-4-unciales, graciles, flexuosi, ramosi, ramis sparsis plerumque simplicibus. *Folia* luteo-fusca, laxe patentia, lanceolato-subulata, flexuosa, carinata, nervo ad apicem attingente instructa. *Perichætialia* planiuscula, substriata. *Setæ* terminales, demum, ob caulis innovationes, laterales, bi- tri-lineares, flexuosæ. *Capsula* ovata, fusca, lævis. *Operculum* subulatum, capsula subæque longa. *Calyptra* intense fusca, glabra, striata, multifida, segmentis longis linearibus. *Peristomium* simplex, dentibus 16 vix per paria approximatis, pallide flavis, linea media longitudinali notatis, transversim striatis.

Orthotrichum gracile has at first sight, not only in its leaves but even in the fruitstalk and capsule, the aspect of *Trichostomum patens*; the calyptra, however, and the teeth prove it to be of the same family with our *O. longirostrum* and *longipes*. From those it differs in its long stem, proliferous branches, which give the fruit so often the appearance of being lateral, and especially in the long narrow and flexuose leaves.

Fig. 1, plants *nat. size*. Fig. 2, leaf. Fig. 3, point of ditto. Fig. 4, perichætial leaf. Fig. 5, fruitstalk and capsule. Fig. 6, teeth of peristome. Fig. 7, operculum.—*magn.*

LESKEA ERICOIDES.

Leskea caule elongato ramoso tereti, foliis arcte imbricatis erectis ovatis subacuminatis striatis enervibus integerrimis, apice recurvo, seta brevi, capsula oblonga erecta sulcata, operculo subulato. (TAB. XXVIII.)

HAB. In sinu Dusky Bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Caules palmares ad spithamæum, erecti? (penduli?) subdichotome divisi, teretiusculi. *Folia* flavo-viridia, nitida, undique imbricata, erecta, ovata, subacuminata, enervia, striata, integerrima, apice recurvo. *Perichætialia* circa pedicellum arcte convoluta, estriata. *Setæ* vix unciam longæ, flexuosæ. *Capsula* erecta, oblongo-ovata, intense fusca, profunde sulcata. *Operculum* subulatum, vix curvatum. *Calyptra* dimidiata. *Peristomium* Leskeæ.

The species to which this is most nearly allied is doubtless the *Leskea flexilis* of Hedwig, and like it probably is pendulous in its place of growth. From that it differs in the ramification (which is not pinnated with short and distant branches), in the far less concave, distinctly striated leaves, and in these having their points recurved, or, I might almost say, reflexed, for they are generally so much bent down as to lie against the back of the leaf. The capsule is remarkably deeply furrowed.

In a work on foreign Mosses I think it right, at least for the present, to adopt the genus *Leskea*, though I must again repeat it as my opinion that it is one not founded in nature. The genus *Hypnum*, is now of so vast an extent, that, in cases where the peristome can be well examined, it is convenient to have recourse to such characters as are afforded by the Hedwigian families of *Leskea* and *Hypnum*.

Fig. 1, plant *nat. size*. Fig. 2, leaf seen in front. Fig. 3, ditto seen from behind. Fig. 4, perichætium and capsule. Fig. 5, outer leaf of perichætium. Fig. 6, inner leaf of ditto. Fig. 7, operculum. Fig. 8, teeth of outer peristome. Fig. 9, portion of inner ditto. Fig. 10, calyptra.

Tab. XXVIII.

Hypnum splanchnoides.

HYPNUM SPININERVIUM.

Hypnum caule erecto fasciculato, foliis laxis bifariis ovatis denticulatis, nervo dorso denticulato ad apicem attingente, capsula sulcata cylindracea cernua. (TAB. XXIX.)

HAB. In sinu Dusky Bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caules 2-3-unciales, erecti, basin versus plerumque dichotome divisi, apice fasciculatim ramosi, ramis subsimplicibus. *Folia* laxa, bifariam imbricata, disticha, ovata, acuta, planiuscula, obscure viridia, substriata, margine denticulata, nervo dorso superne denticulato ad apicem attingente instructa. *Perichætialia* ovata, longe-acuminata, nervo distincto. *Setæ* plurimæ ex eodem caule, biunciales, flexuosæ, rubræ. *Capsula* cylindracea, intense fusca, profunde sulcata. *Peristomii* dentes *ext.* lutei, *int.* flavi.

This species will range with *H. fasciculatum* and *arcuatum*, differing however in many points from both, and particularly in the toothed back of the nerve. The capsule resembles that of *H. undulatum* in its cylindrical shape and deep furrows. The calyptra and operculum I have not seen.

Fig. 1, plant *nat. size*. Fig. 2, leaves of the stem. Fig. 3, single ditto seen on the back. Fig. 4, perichætium. Fig. 5 and 6, perichætial leaves. Fig. 7, capsule. Fig. 8, outer teeth of the peristome. Fig. 9, inner ditto.—*magn.*

LESKEA LAXIFOLIA.

Leskea caule procumbente pinnato, foliis laxe imbricatis, *caulinis* subdeltoideis, *rameis* ovatis, omnibus acuminatis, nervo ante apicem evanescente, seta scabra, capsula ovato-globosa, operculo conico-acuminato. (TAB. XXX.)

HAB. In plaga occidentali Americæ Borealis. *D. Menzies*, 1791.

Caules 3–4-unciales, procumbentes, pinnatim ramosi, ramis brevibus, attenuatis, subsimplicibus. *Folia* laxe imbricata, serrulata, mollia, sordide viridia, nitoris omnino expertia, areolis reticuli minutissimis, nervo obscuro ante apicem evanescente; *caulina* ovato-deltoidea, brevi-acuminata; *ramea* ovata, sublonge acuminata. *Perichætialia* oblonga, longe attenuata, concava, enervia, apice solummodo serrata. *Seta* vix unciam longa, flexuosa, tuberculata. *Capsula* ovato-globosa, cernua. *Operculum* conico-acuminatum, apice sensim curvatum. *Peristomium* Leskeæ.

Although a true *Leskea* as far as the peristome can make it so, this species has not, what is common to many species in the genus, the upright capsule; and in many particulars it comes very near the moss figured in the following plate (*Hypnum crispifolium*). This species is much the smaller of the two; and when the leaves come to be examined, the direction, form, and even texture will be found to differ in the two. From *H. velutinum* it is hard to distinguish this species in words (setting of course aside the difference in the peristome); but it may be observed that the stems are much longer in our plant; the leaves, of the stem particularly, broader, far less rigid, and with a longer but more indistinct nerve.

Fig. 1, plant *nat. size*. Fig. 2, portion of ditto. Fig. 3, cauline leaf. Fig. 4, ramal leaf. Fig. 5, perichætial leaf. Fig. 6, capsule. Fig. 7, teeth of outer peristome. Fig. 8, portion of inner ditto.—*magn.*

Tab XXX.

Leskea laxifolia.

Edwards Sculp.

Tab. XXXI.

Hypnum crispifolium

Edwards Sculp.

HYPNUM CRISPIFOLIUM.

Hypnum caule repente pinnatim ramoso, foliis flaccidis falcato-secundis, *caulinis* deltoideis, *rameis* ovato-lanceolatis, omnibus serratis flexuosis longe acuminatis, seta scabra, capsula ovata cernua. (TAB. XXXI.)

HAB. In plaga occidentali Americæ Borealis. *D. Menzies*, 1791.

Caules 4-5-unciales, repentes, vage divisi, pinnatim ramosi, ramis sæpe iterum pinnatis. *Folia* luteo-viridia, opaca, subfalcato-secunda; *caulina* deltoidea, *ramea* ovato-lanceolata, omnia longe acuminata, quandoque pilo flexuoso terminata, dentato-serrata, substriata, flexuosa, siccitate præcipue crispata, mollia, crassiuscula, areolis reticuli minutissimis, nervo pallido, sæpe subpellucido, satis lato, ante apicem evanescente instructa. *Perichætialia* ovato-lanceolata, attenuata, serrata, nervo obscuro. *Seta* uncialis, rubra, tuberculosa. *Capsula* ovata, cernua. *Peristomium ext.* dentibus fulvis, *int.* membrana 16-dentata, laciniis bifidis, ut in *Bartramia*, ciliis duobus vel tribus his interpositis.

We have here a *Hypnum* in many points according with the *Leskea laxifolia* (TAB. XXX.), and in others with *Hypnum abietinum*; but its leaves will be found to be truly recurved and often falcate, of a thick but soft texture, much acuminated at the points, and strongly serrated. The teeth of the inner peristome are remarkable in being bifid, and the fruitstalk is tuberculated.

Fig. 1, plants *nat. size.* Fig. 2, 2, cauline leaves. Fig. 3, ramal leaf. Fig. 4, perichætium. Fig. 5, leaf of ditto. Fig. 6, capsule. Fig. 7, teeth of outer peristome. Fig. 8, teeth of inner ditto.—*magn.*

SPLACHNUM SCABRISETUM.

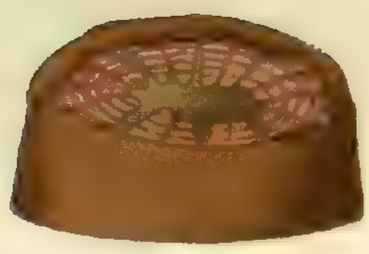
Splachnum foliis lingulatis obtusissimis, nervo ante apicem evanescente, capsula cylindracea apophysi vix latiore, seta scabra. (TAB. XXXII.)

HAB. In umbrosis temperatis Gonzanamam inter et Lucarque (Prov. Jaen de Bracamoros), altitudine 1060 hexapod. *Humboldt et Bonpland.*

Caules cæspitosi, vix unciales, subsimplices, inferne dense radiculosi. *Folia* laxe imbricata, erecto-patentia, undulata, flaccida, sordide viridia, lingulata, integerrima, apice obtusissima, reticulata, nervo fusco ante apicem evanescente instructa. *Seta* unciam longa, flexuosa, pallide rubra, tuberculosa. *Capsula* cylindracea, apophysi vix latior, fusco-viridis, demum, post semina ejiciantur, intense fusca, magis angusta, et una cum apophysi longe cylindracea. *Calyptra* integra. *Operculum* obtuse conicum. *Peristomium* intra marginem oris, e dentibus constans sedecim per paria approximatis, rubro-fuscis, siccitate erectis vel recurvis, madore insigniter involutis fere ut in *Tayloria splachnoide.*

S. scabrisetum in the leaves is not to be distinguished from *Weissia splachnoides*, and the whole plant bears a great affinity to *Splachnum Frœlichianum*. In the subject of this plate, the roughness of the fruitstalk will afford a sufficient mark of discrimination; and a further character is to be found in the teeth of the peristome being situated within the mouth of the capsule, and so remarkably involute when moist, that the plant in this state might be easily taken for a *Gymnostomum*.

Fig. 1, plants *nat. size*. Fig. 2, single plant. Fig. 3, leaf. Fig. 4, young capsule. Fig. 5, calyptra. Fig. 6, mouth of a capsule showing the involute teeth. Fig. 7, portion of ditto. Fig. 8, operculum.—*all magn.*



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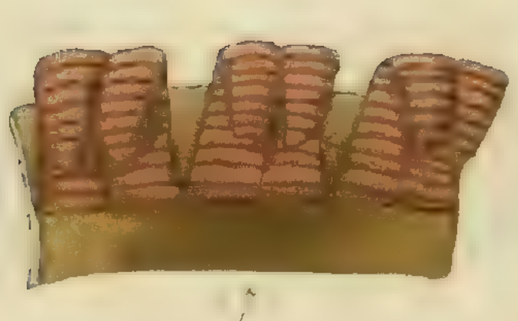

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2

Splachnum scabrisetum.

Edwards dept

Tab. XXXIII.

Hypnum Menziesii

HYPNUM MENZIESII.

Hypnum caule erecto, apice dense fasciculatim ramoso, ramis deflexis, foliis undique imbricatis ovatis mucronulatis apice serratis, nervo excurrente dorso denticulato, capsula cylindracea pendula, operculo conico acuto. (TAB. XXXIII.)

HAB. In sinu Dusky Bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Radix repens, tomentosa, fusca. *Caulis* palmaris et ultra, erectus, crassiusculus, nigro-fuscus, rigidus, inferne simplex nudusque, squamis foliaceis sparsim vestitus, superne fasciculatim ramosus, proliferus, ramis densis, iterum divisis, deflexis, vix attenuatis, subcompressis. *Folia* undique sublaxe imbricata, erecta, flavo-viridia, nitentia, ovata, parum concava, apicem versus spinoso-serrata, nervo, dorso superne denticulato, in mucronem breviusculum producto, instructa. *Perichætialia* lanceolata, longe attenuata, subserrata, enervia, plicato-striata, flavescentia, basi aurantia. *Setæ* 4 vel plures, subaggregatæ, 3-unciales, flexuosæ, rubræ. *Capsula* cylindracea, fusca, cernua vel etiam pendula. *Operculum* conicum, acutum. *Perist. ext.* dentibus latis, fulvis: *int.* membrana 16-laciniata, flava, laciniis longis valde attenuatis, basi perforatis, ciliis duobus his alternantibus.

This truly magnificent species I dedicate with peculiar pleasure to its discoverer, Archibald Menzies, Esq., who has with so much liberality permitted me to publish the cryptogamic treasures he collected during his voyage round the world. Of the value and extent of this collection I need not speak, since this work is destined to contain figures and descriptions of all such as are new, and a list will be given towards its close of such as have already been described by former authors.

Although so strikingly distinct from every other species, it may not be amiss to observe that the present plant will rank near to *H. alopecurum*.

Fig. 1, plants *nat. size*. Fig. 2, leaf seen in front. Fig. 3, side view of ditto. Fig. 4, perichætium. Fig. 5, leaf of ditto. Fig. 6, capsule. Fig. 7, teeth of external peristome. Fig. 8, portion of inner peristome.—*magn.*

LESKEA CONCINNA.

Leskea **stipulata, caule erecto bipinnato inferne nudo, foliis bifariis verticalibus stipulisque oblongis brevi-acuminatis marginatis apice serratis, nervo attingente, seta brevi, capsula erecta, operculo subulato. (TAB. XXXIV.)**

HAB. In sinu Dusky Bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Radix repens, dense tomentosa. *Caulis* quadriuncialis et ultra, erectus, flexuosus, inferne denudatus, demum pinnatim ramosus, ramis horizontalibus, simplicibus vel iterum pinnatis. *Folia* bifariam inserta, disticha, patentia, verticalia, pallide luteo-viridia, oblonga, brevi-acuminata vel quandoque submucronulata, margine incrassata, superne spinoso-dentata, nervo sub summum apicem evanescente instructa. *Stipulæ* (vel si velis folia intermedia minora, et tunc folia trifaria) foliorum figura sed duplo minores, caulis facie posteriore ortæ, erectæ atque ei appressæ. *Perichætialia* circa setam arcte convoluta, ovato-lanceolata, longe attenuata, vix serrata, enervia, immarginata. *Seta* subtrilinearis. *Capsula* ovato-cylindracea. *Operculum* subulatum, capsulæ subæque longum. *Peristomium* Leskeæ.

This elegant plant, to which the name of *concinna* seems to be so peculiarly applicable, cannot be mistaken for any hitherto known species of Moss. Its habit is like that of many *Neckeræ*; but the peristome is that of a *Leskea*; and this circumstance, together with the direction of the leaves, and the presence of the stipules, will bring it near to the *Leskea pennata*, *filiculæformis*, and *rotulata*.

Fig. 1, plant *nat. size*. Fig. 2, portion of ditto with the capsule showing the stipules. Fig. 3, leaf. Fig. 4, perichætial ditto. Fig. 5, operculum. Fig. 6, teeth of outer peristome. Fig. 7, portion of inner ditto.—*magn.*

Tab XXXIV.

Leskea crassa

Hypnum Curcumum

HYPNUM LARICINUM.

Hypnum stipulatum, caule erecto inferne denudato, apice pinnatim ramoso, foliis bifariis verticalibus oblique erectis submarginatis denticulatis, basi uninervibus, stipulis cordatis breviter acuminatis serratis, nervo perbrevi, capsula ovata nutante, operculo rostro curvato. (TAB. XXXV.)

HAB. Ad promontorium Bonæ Spei. *D. Menzies*, 1791. In jugis Andium regione temperata. *Humboldt et Bonpland.*

Radix repens, dense tomentosa. *Caulis* 2-3-uncialis, erectus, inferne ramis destitutus, superne pinnatim divisus, ramis patentibus vel etiam deflexis, plerumque simplicibus. *Folia* intense viridia, bifariam inserta, disticha, patentia, verticalia, oblique late ovata, acuta, subundulata, mollia, indistincte marginata, denticulata, nervo satis distincto prope medium evanescente instructa. *Stipulæ* foliis duplo minores, cordatæ, breviter acuminatæ, serrulatæ, nervo perbrevi. *Perichætialia* ovata, aristato-acuminata, nervo brevi. *Setæ* numerosæ, non rarò aggregatæ, subunciam longæ. *Capsula* ovata, nutans, punctulata. *Operculum* rostratum, rostro curvato. *Calyptra* dimidiata. *Peristomii* dentes *ext.* angusti, flavi.

This approaches very near to the *Leskea filiculæformis*, the *L.rotulata*, and *Leskea* (*Hypn.*, Schwaegr.) *tamariscina* of Hedwig. From the first it differs in its much smaller size but larger leaves, and in its branches being never regularly twice pinnated; —from the second, in the stipules, which want the excurrent nerve;—and from the last, in the absence of the *setæ* among the leaves. With regard to the Hedwigian *L. tamariscina*, indeed, it does not accord either with Swartz's description, or with the specimen which he has kindly sent to me; and Swartz is the original authority. His plant is destitute of setæ, and I do not find that it differs essentially from *L. rotulata* of Hedwig, which ought thus to bear the name of *tamariscina*. I shall have the opportunity of saying more of these species hereafter.

H. laricinum is found as well on the continent of Africa as America.

Fig. 1, plant *nat. size*. Fig. 2, portion of stem, leaves, and stipules. Fig. 3, single leaf. Fig. 4, stipule. Fig. 5, perichætium and capsule. Fig. 6, & 7, perichætial leaves. Fig. 8, outer peristome. Fig. 9, inner ditto. Fig. 10, calyptra. Fig. 11, operculum.—*magn.*

JUNGERMANNIA DENSIFOLIA.

Jungermannia caule erecto subsimplici, foliis dense bifariam imbricatis ciliatis conduplicatis profunde bilobis, segmentis æqualibus oblongis. (TAB. XXXVI.)

HAB. Staten Land Americæ meridionalis. *D. Menzies*, 1787.

Caulis 3-4-pollicaris, erectus, strictus, plerumque simplex. *Folia* exacte disticha, dense bifariam imbricata, horizontalia, oblonga, arcte conduplicata, fusco-viridia, pulcherrime ciliata, profunde biloba, lobis vel potius segmentis oblongis, undulatis, subtortis. *Substantia* mollis, reticulata, areolis parvis rotundatis.

There is a striking peculiarity in this plant from the regularly distichous, horizontal, and conduplicate foliage; circumstances in some degree belonging also to *J. albicans*, to which this plant in natural habit is allied. Here, however, the leaves have their lobes and segments equal in length, and their whole margins most beautifully ciliated.

It is probable that the fructification of this plant will be found to resemble that of *J. albicans*;—unfortunately, there is no appearance of any in Mr. Menzies's specimens.

Fig. 1, plant *nat. size*. Fig. 2, portion of stem with the leaves. Fig. 3, leaf. Fig. 4, portion of ditto.—*magn.*

Jungermannia densifolia

Edwards Sculp.

Leucodon tomentosus

Edwards Sep.

LEUCODON TOMENTOSUS.

Leucodon caule subrepente densissime tomentoso, ramis erectis, foliis undique imbricatis erectis lanceolatis plicatis, basi nervo obsoleto, apice acumine piliformi serrulato, capsulis erectis ovato-cylindraceis. (TAB. XXXVII.)

HAB. In sylvis Cinchonæ prope Loxam, regione temperata, altit. 1080 hexapod. *Humboldt et Bonpland.*

Caulis subrepens, tomento ferrugineo densissime obsitus, ramis erectis basi ferrugineo tomentosis, apice foliosis. *Folia* undique imbricata, erecta, flavescentia, nitida, lanceolata, longitudinaliter plicata, basi obsolete uninervia, apice in acumen longum, piliforme, flexuosum, serrulatum desinentia. *Perichætialia* ovato-acuminata, enervia. *Seta* lateralis, subuncialis. *Capsula* oblongo-ovata, erecta. *Calyptra* dimidiata. *Peristomium* e membrana, dentes sedecim filiformes, flavi, ad basin fere fissi, segmentis erectis.

This plant in its bright and upright foliage is not much unlike *Neckera trichophylla* of Swartz (*Hypn.*, Hedw.); but the peristome is very remarkable: and were it not for the membrane from which the peristome rises (exactly as in the inner fringe of *Neckera* and *Hypnum*), it would very satisfactorily accord with the genus *Leucodon*, where it may, at least for the present, be allowed to remain. I can in no instance find a double peristome, nor the least appearance of its having existed on any one of the many capsules which I possess. But it must be observed that I have not had the opportunity of examining a capsule upon which the operculum was found.

Fig. 1, 1, plants *nat. size*. Fig. 2, leaf. Fig. 3, point of ditto. Fig. 4, perichætial leaf. Fig. 5, perichætium. Fig. 6, capsule and peristome. Fig. 7, teeth of peristome. Fig. 8, calyptra.—*magn.*

HOOKERIA PALLESCENS.

Hookeria caule suberecto vage ramoso, ramis compressis, foliis undique imbricatis ovatis obtusis minute reticulatis, basi binervibus, seta elongata, capsula subovata, calyptra multifida. (TAB. XXXVIII.)

HAB. Ad ripam fluminis Orinoco prope Esmeraldam, locis opacis. *Humboldt et Bonpland.*

Caulis 2-3-uncialis, erectus, vage ramosus, ramis compressis. *Folia* undique imbricata, albida, ovata, concava, obtusa, integerrima, basi binervia, dorso versus apicem minute papillosa, substantia membranacea, vix succulenta, reticulis parvis. *Perichætialia* enervia. *Seta* sesquiuncialis, flexuosa. *Capsula* parva, nutans, ovata, medium versus contracta. *Operculum* non vidi. *Calyptra* lævis, pallide fusca, mitriformis, basi in lacinias satis longas fissa. *Peristomium Leskeæ*, dentibus *ext.* brevioribus.

This species will rank near *Hookeria* (*Lesk.*, Hedw.) *albicans*. The very pale, almost white, colour is common to both. Our plant is much larger, more straggling in its growth; the fruit-stalks are much longer; the leaves very obtuse, entire, slightly papillose at the back, with short nerves and a very minute reticulation. In both the calyptra is multifid at the base, but the divisions are longer in this; both too are smooth, not marked with reticulations, of which the interstices are sunk so as to form pits or hollows, as in *Hook. læte-virens* and *lucens*.

Fig. 1, plant *nat. size*. Fig. 2, portion of a branch. Fig. 3, 4, leaves. Fig. 5, perichætium and capsule. Fig. 6, perichætial leaf. Fig. 7, calyptra. Fig. 8, outer peristome. Fig. 9, inner ditto.

Tab. XXXVIII.

Hookeria pallescens

Tab XXXIX.

Lycopodium annotinum glaucescens.

JUNGERMANNIA GLAUCESCENS.

Jungermannia caule erecto, foliis bifariis horizontalibus inæqualiter bilobis pubescentibus, lobis conduplicatis ovatis, stipulis quadrifidis, calyce terminali foliaceo. (TAB. XXXIX.)

HAB. In sinu Dusky Bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Caulis 3-4-uncialis, erectus, flexuosus, dichotome divisus. *Folia* bifaria, disticha, horizontalia, glauco-viridia, reticulata, pubescentia, biloba, lobis inæqualibus, conduplicatis, *anterioribus* minoribus ovatis, *posterioribus* longioribus, magis angustis. *Stipulæ* subquadratæ, quadrifidæ, pubescentes. *Fructus* terminalis. *Calyx* foliis obsitus, elongato-cylindracea, carnosa. *Seta* bipollicaris, alba. *Capsula* quadrifida, segmentis linearibus.

There are several European species of *Jungermannia* (such as *J. nemorosa*, *J. undulata*, &c.), with a habit similar to the one here figured, and with leaves of a like form; but none, that I am yet acquainted with, which has the stipules placed on the same side of the stems with the larger lobes of the leaf. In this particular our plant differs most remarkably from *J. tomentella*, with which at first sight it may appear allied, and naturally ranks with *J. appendiculata* and *J. nobilis* of the *Musci Exotici*. It is remarkable in its leaf-bearing calyx (such as is seen in *J. compressa* and a few other British species), and in its pubescent foliage and stipules.

Fig. 1, plant *nat. size*. Fig. 2, portion of a stem with the calyx. Fig. 3, leaf and stipule. Fig. 4, calyx dissected. Fig. 5, capsules.—*magn.*

JUNGERMANNIA SCOLOPENDRA.

Jungermannia caule erecto pinnatim ramoso, ramis deflexis attenuatis, foliis undique imbricatis oblongis bifidis, segmentis bifidis, calyce laterali foliaceo. (TAB. XL.)

HAB. In sinu Dusky Bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Caulis digitalis vel palmaris, erectus, flexuosus, pinnatim ramosus, ramis numerosis, deflexis, attenuatis, flagelliformibus, apice subnudis, non raro radicantibus. *Folia* undique imbricata, in ramis trifaria, oblonga, scariosa, rigida, flavo-fusca, oblongo-punctata, bifida, segmentis paululum divaricatis, iterum bifidis, laciniis acuminatis, subdiaphanis. *Calyces* laterales, in axillas pinnarum, obovati, quadrifidi, foliis parvis, caulinorum similibus, obsiti. *Seta* vix calyce longior. *Capsula* parva, valvis ovatis, fuscis.

This singular plant no one will hesitate to pronounce as nearly allied to *J. juniperina* of Swartz. It has the same rigid texture and dotted appearance in the foliage, and the calyx is equally covered by leaves. Here, however, the ramification is very peculiar, being closely pinnate with deflexed branches, and has given rise to the specific name. The fructification too is axillary, and the leaves, which are only bifid in *juniperina*, have their segments again divided in *J. Scolopendra*.

Fig. 1, plants *nat. size*. Fig. 2, calyx dissected, showing the fruitstalk and capsule. Fig. 3, leaf.—*magn*.

Tab XL.

Jungermannia Scalopendra.

Linné fec.

Tab XCI.

Sarcostigma Scyphanthum.

Edwards sculp.

ANICTANGIUM TORQUATUM.

Anictangium caule repente subtus tomentoso stipulatoque, foliis distichis ligulatis nervosis apice involutis, perichætialibus stipulisque lanceolatis strictis, capsula immersa. (TAB. XLI.)

HAB. Ad ripam fluminis Amazonum in umbrosis calidis Provinciæ Jaen de Bracamoros, prope Tomependam. *Humboldt et Bonpland.*

Caules cæspitosi, repentes, subpinnatim ramosi, ramis non raro erectis, caulibus ramisque inferne ubique tomento ferrugineo obsitis stipulisque admixtis. *Folia* viridia, disticha, subhorizontalia, ligulata, parum undulata apice insigniter involuta, siccitate torta, nervo valido fusco percursa. *Perichætialia* circa capsulam undique imbricata, lanceolata, stricta, fusca, nervo obscuro. *Stipulæ* parvæ, lanceolatæ, strictæ, nervo distincto. *Seta* perbrevis. *Capsula* oblongo-ovata, perichætialibus obtecta. *Operculum* planum medio umbonatum.

This most remarkable moss, of which I have not had the good fortune to see the calyptra, accords so well in the other parts of its fructification with the genus *Anictangium*, especially with *A. ciliatum* and *imberbe*, that I have little hesitation in placing it with and near those species. The rest of the plant is nevertheless totally different from them; and were it not for the strong nerve in the leaves, might be readily mistaken for some *Jungermannia*.

Throughout their whole length the stems are covered beneath with a thick ferruginous down, intermixed with stipules, and the leaves, which grow in a distichous form, are, when dry, so much curled as to cover the whole upper surface of the stem, and if macerated for ever so great a length of time continue involuted in a most remarkable manner.

Fig. 1, plant *nat. size*. Fig. 2, fructified branch, seen on the upper side. Fig. 3, under side of a portion of the stem. Fig. 4, capsule and perichætial leaf. Fig. 5, leaf. Fig. 6, stipule. Fig. 7, operculum.—*magn.*

GYMNOSTOMUM JULACEUM.

Gymnostomum caule erecto filiformi subsimplici, foliis arcte imbricatis appressis ovatis serrulatis convolutis, nervo crasso, perichætialibus majoribus oblongis acuminatis, seta longa, capsula oblonga ovata, operculo subulato. (TAB. XLII.)

HAB. In crepidinibus montis ignivomi Rucu-Pichincha prope Tablahuma, regione frigida, super basaltam, altitudine 2340 hexapod. (Regni Quitensi.) *Humboldt et Bonpland.*

Caules cæspitosi, semiunciales, filiformes, rigidi, erectiusculi, simplices vel innovationibus ramosi. *Folia* arcte flavo-viridia, nitida, imbricata, undique cauli appressa, ovata, subconcava, serrulata, nervo insigniter incrassato sub summum apicem evanescente instructa. *Perichætialia* his multo majora, fusca, *ext.* ovata, acuminata, subserrulata, nervo crasso, *int.* longiora, circa setam convoluta, nervo magis obscuro. *Seta* semiunci-alis. *Capsula* oblongo-ovata, ore contracto, annulato. *Operculum* subulatum.

The stems and unmagnified leaves of this little plant resemble those of *Bryum julaceum* more than any other moss; and its general habit is that of a *Pterogonium*. It is however a true *Gymnostomum*, as far as I am capable of judging without the calyptra, which I have never yet seen, although it does not bear much affinity to any of the other species of this varying genus. The nearest is perhaps *G. æstivum;* in which, as well as in this plant, the perichætium is highly worthy of remark; but in their leaves the two species are totally different from one another.

Fig. 1, plants *nat. size.* Fig. 2, plants *magn.* Fig. 3, leaf. Fig. 4, 5, perichætial leaves. Fig. 6, capsule. Fig. 7, operculum. Fig. 8, mouth of the capsule, showing the annulus.—*magn.*

Tab XLII.

Tab. XLIII.

Sabinea Longiseta

Edwards Sculp.

NECKERA LONGISETA.

Neckera caule subpinnatim ramoso, foliis undique imbricatis late ovatis acuminatis enervibus subintegerrimis, seta longa, capsula oblongo-cylindracea, operculo subulato. (TAB. XLIII.)

HAB. Locis umbrosis, alsis montis Quindiu (Cordillera de los Andes de Cundinamara). *Humboldt et Bonpland.*

Caules 3-4-unciales, decumbentes, ramosi, ramis subpinnatis, sæpe erectis. *Folia* undique imbricata, erecta, flavo-viridia, nitida, late ovata, apice acuminulata, sub summo lente minutissime serrulata, omnino enervia. *Perichætialia* longiora, angustiora, magis acuminata, *int.* convoluta. *Setæ* sæpe duæ vel tres ex eodem ramo, biunciales, flexuosæ. *Capsula* oblongo-cylindracea. *Calyptra* dimidiata. *Operculum* subulatum, capsula multo brevius. *Peristomii ext.* dentes 16, pallide fusco-rufescentes, linea media longitudinali notati; *int.* e ciliis perangustis, pallide flavis, his alternantibus.

It must be confessed that this species comes very near to *N. seductrix;* but its much larger size, longer fruitstalk and operculum, together with the broader, more evidently acuminated and entirely nerveless leaves, have induced me to keep it distinct. With *N. cladorrhizans* in point of size it has a greater resemblance: but that plant has its leaves, though likewise destitute of nerve, of a different shape, not very correctly represented in *Hedw. Sp. Musc.*, and the "rami apice radicantes" are never found on the present species.

Fig. 1, plant *nat. size.* Fig. 2, leaf. Fig. 3, perichætium. Fig. 4, 5, leaves of ditto. Fig. 6, capsule. Fig. 7, operculum. Fig. 8, calyptra. Fig. 9, portion of peristome.—*magn.*

ORTHOTRICHUM LONGIFOLIUM.

Orthotrichum caule repente, ramis erectis, foliis lanceolato-subulatis flexuosis siccitate crispis, seta longa, capsula brevi ovata sulcata, ciliis nullis, dentibus 16 per paria unitis. (TAB. XLIV.)

HAB. Ad radices *Bifariæ glaucæ** altitudine 950 hexapod., regione temperata, in devexis montis Avilæ prope Caraccas. *Humboldt et Bonpland.*

Caules repentes, nudiusculi, ramosi, ramis erectis. *Folia* numerosa, horizontaliter patentia, lanceolato-subulata, carinata, flexuosa, integerrima, nervo ad apicem attingente percursa, inferiora fusca, superiora aureo-flavescentia, nitida. *Perichætialia* parva, anguste lanceolata, nervo brevi obscuro. *Seta*, ob caulis innovationes, non raro lateralis, semiunciam longa. *Capsula* ovato-rotundata, vel suburceolata, rufo-fusca, distincte sulcata. *Peristomii dentes* 16, pallidi, per paria uniti.

It is not easy at first sight, except by the decidedly sulcated capsule, to distinguish this plant from *Anictangium cirrhosum* of Hedw. (*Sclotheimia?* Schwaegr.); but when the leaves come to be more accurately examined, they will be found to be neither so long as those of *A. cirrhosum*, nor in the least serrated. The operculum and calyptra I have not seen; but judging from the general habit of the plant, this latter may be expected to resemble that of *O. longirostre*, *gracile*, and their affinities.

Fig. 1, plant *nat. size.* Fig. 2, leaf. Fig. 3, perichætium. Fig. 4, leaf of ditto. Fig. 5, capsule. Fig. 6, teeth of peristome. —*magn.*

* *Humboldt et Bonpland. Pl. Æquinoct.* vol. ii. p. 119.

Orthotrichum Longifolium

Edwards lith.

Tab XLV.

Dicranum apiculatum.

ORTHOTRICHUM APICULATUM.

Orthotrichum caule repente ramoso, ramis erectis, foliis oblongis apiculatis medio canaliculatis siccitate tortis, seta longa, capsula ovato-cylindracea, calyptra glabra multifida. (TAB. XLV.)

HAB. Prope Xalapam in regno Mexicano, regione temperata. *Humboldt et Bonpland.*

Caules repentes, nudiusculi, rigidi, ramosi, ramis erectis subfasciculatim divisi. *Folia* numerosa, fuscescentia, superiora pallidiora flavo-viridia nitoris expertia, horizontaliter patentia, oblonga, margine subundulata, nervo ultra apicem in apiculum producto percursa. *Perichætialia* minora late ovata, subacuminata. *Seta* demum lateralis longiuscula. *Capsula* ovato-cylindracea, senectute sublanceolata. *Operculum* subulatum. *Calyptra* badia, striata, mitriformis, glabra, a basi usque ad medium in lacinias angustas fissa, laciniis apice bifidis. *Peristomium ?*

So closely does this moss border upon the *Sclotheimia squarrosa* of Schwaegrichen, that I can hardly point out any essentially distinguishing character between them except in the calyptra, which is by no means alike in the two plants. I have therefore greatly to regret that in all the specimens I possess of *O. apiculatum* the capsules are either not sufficiently, or else too much, advanced to exhibit a peristome. Those in the latter state are quite destitute of teeth; and as to those upon which the operculum still remains, I can, on removing this part under the microscope, discover nothing but a pulpy mass filling the hollow of the lid, the external substance of which, when the capsule is arrived at maturity, probably forms the peristome.

Until I can satisfy myself as to the real structure of the teeth, I shall place this species among the *Orthotricha*, where it will rank naturally enough with *O. longipes*, *O. gracile*, *O. longirostre* and *longifolium*,—differing however from all in the form of the leaves.

Fig. 1, plant *nat. size*. Fig. 2, leaves. Fig. 3, perichætial leaf. Fig. 4, capsule with the operculum. Fig. 5, old capsule. Fig. 6, calyptra.

HEDWIGIA SECUNDA.

Hedwigia caule erecto ramoso, ramis subpinnatis, foliis secundis late ovatis acuminulatis marginatis striatis enervibus apice serrulatis, capsula ovato-cylindracea, operculo subulato. (TAB. XLVI.)

HAB. In regni Mexicani montosis apricis, juxta Toluccam, ad radices montis perpetua nive obtecti, regione frigida, altitudine 1640 hexapodarum. *Humboldt et Bonpland.*

Caules 3-4-unciales, erecti, flexuosi, subvage ramosi, ramis pinnatis, pinnis non raro flagelliformibus, subdenudatis, radicantibus. *Folia* undique inserta, sed uno latere spectantia et ita secunda, late ovata, acuminulata, concava, striata, omnino enervia, margine incrassata, apice serrulata, flavo-virescentia, basi aurantia. *Perichætialia* lanceolata, striata, sæpe involuta. *Seta* lateralis, sesquiuncialis. *Capsula* ovato-cylindracea, ore parvo demum post operculi casum latiore. *Operculum* subulatum, rostro inclinato. *Calyptra* dimidiata.

In the *Muscologia Britannica* it is proposed that the genus *Hedwigia* should be confined to those mosses whose capsules have a naked mouth and lateral fruitstalks. Such is the case in the present instance; and so it is with another Humboldtian moss, which differs from this in many particulars, and which I shall soon take occasion to publish in this work. In both there is a considerable resemblance in the leaves to those of *Anictangium ciliatum* and *imberbe*.

Fig. 1, plant *nat. size*. Fig. 2, leaf. Fig. 3, perichætium. Fig. 4, leaf of ditto. Fig. 5, capsule with operculum. Fig. 6, mature capsule. Fig. 7, calyptra.—*magn.*

Tab. XLVI.

Hedwigia secunda

Edwards Sculp.

Tab. XLVII.

Lycopodium sphagnoides

Comm. Sept.

JUNGERMANNIA SPHAGNOIDES.

Jungermannia caule adscendente ramoso, foliis bifariam imbricatis lanceolatis denticulatis convexis, basi subtus auriculatis, auricula oblonga inflata, calyce laterali oblongo plicato apice denticulato. (TAB. XLVII.)

J. sphagnoides. *Richard MSS. Schwaegr. Hist. Musc. Hepat. Prodr. p.* 23.

HAB. Insula Stæ Helenæ. *D. Menzies,* 1795, et *D. Burchell.* Insula Franciæ et Borboniæ legit *Aubert du Petit Thouars.*

Caules cæspitosi, basi decumbentes, dein erecti, plerumque ramosi. *Folia* magna, fusco-flavescentia, superiora sæpe rubedine tincta, omnia arcte bifariam imbricata, horizontalia, non raro subsecunda, lanceolata vel ovato-lanceolata, supra convexa, margine denticulata, substantia compacta, areolis minutissimis, margine subtus auriculata; *auricula* foliis subdimidio minore et iis appressa, erecta, oblonga, inflata, basi intus aperta. *Perichætialia* minora, biloba, lobis subæqualibus subintegerrimis. *Calyces* laterales, numerosi, foliis plusquam dimidio longiores, oblongi, plicati, apice denticulati. *Seta* calycem vix excedens. *Capsula* ovato-rotunda rufo-fusca, quadrivalvis.

Various travellers, besides Mr. Menzies and Mr. Burchell, have brought this noble *Jungermannia* from the island of St. Helena, where the latter gentleman informs me it grows only on the upper side of horizontal branches of ancient trees on the highest peaks in the interior of the island; such as are constantly wetted by floating mists and clouds. It is a most picturesque object, growing always in very large and dense masses, and varying from red to a pale green.

This species, which is plentiful with fructification, is the more interesting because the only one to which it bears any resemblance, our *J. cochleariformis,* has never been found with calyces; and from the close affinity between the two plants, it is natural to suppose that the fructification is also similar. As a species *J. sphagnoides* differs from *J. cochleariformis* principally in the form and circumscription of the leaf. The auricle is nearly the same in both.

Fig. 1, plants *nat. size.* Fig. 2, portion of the stem with fructification. Fig. 3, leaf laid open to show the structure of the auricle. Fig. 4, perichætial leaf. Fig. 5, calyptra, fruit-stalk, and capsule.

JUNGERMANNIA THOUARSII.

Jungermannia caule adscendente, foliis bifariam imbricatis horizontalibus inæqualiter bilobis, lobis verticalibus ovatis spinoso-denticulatis, minoribus majoris lobi paginæ affixis, stipulis quadratis emarginatis denticulatis. (TAB. XLVIII.)

HAB. Insula Franciæ. *D. Aubert du Petit Thouars.*

Caules 3-4-unciales, basi decumbentes, dein erecti, sæpe ramosi, subtus radicibus longiusculis, intense purpureis, obsiti. *Folia* sublaxe bifariam imbricata, horizontalia, flavo-viridia, areolis minutis reticulata, biloba, lobis conduplicatis, verticalibus, subundulatis, spinoso-denticulatis, inæqualibus, *posterioribus* majoribus, *anterioribus* paginæ majoris lobi, versus ejus medium per totam longitudinem affixis. *Perichætialia* reliquis similia. *Stipulæ* inferiore parte caulis nullæ, superne sensim majores, subquadratæ, margine denticulatæ, subreflexæ, apice emarginatæ. *Calyx* terminalis, ovato-subcyathiformis, ore aperto, laciniato, laciniis latiusculis spinoso-dentatis.

This is a plant the general structure of whose leaf is similar to that figured at TAB. XV. of this work (*J. appendiculata*), but which comes from a very different part of the world, and is characterized by the undivided larger lobes of the leaf, never cut into pinnæ-like divisions, and the quadrate and simply emarginate apex of the stipules. It is besides considerably smaller; and at first sight its general habit resembles starved specimens of *J. sphagnoides*, so much so that the learned botanist to whom we are indebted for its discovery had actually marked it in his MSS. as the same species.

Fig. 1, plants *nat. size.* Fig. 2, portion of a plant with a calyx. Fig. 3, leaf. Fig. 4, inferior stipule. Fig. 5, superior ditto. Fig. 6, extremity of a leaf.—*magn.*

Jungermanniæ Thouarsii

Edwardi Sept.

Tab. XLIX.

Jungermannia lamellata

Ehrhardt Sp.

JUNGERMANNIA LAMELLATA.

Jungermannia caule erecto diviso, foliis dense bifariam imbricatis horizontalibus æqualiter bilobis, lobis ovatis conduplicatis dorso lamellatis, lamellis spinoso-dentatis apice inciso-pinnatis, pinnis denticulatis, stipulis bilobis spinoso-dentatis. (TAB. XLIX.)

HAB. Staten Land, prope Terra del Fuego, America meridionali. *D. Menzies*, 1787.

Caulis erectus, digitalis et ultra, simplex vel subdichotome divisus. *Folia* magna, arcte bifariam imbricata, horizontaila, fusco-viridia, areolis parvis rotundatis reticulata, æqualiter biloba, lobis oblongo-ovatis, conduplicatis, appressis, verticalibus, dorso lamellato, lamellis 8 vel 10 longitudinaliter affixis, spinoso-dentatis, apice margine pinnato-incisis, segmentis denticulatis. *Stipulæ* majusculæ in duos lobos ovatos spinoso-dentatos divisæ, infra stipulas squamulæ parvæ simplices vel divisæ reperiuntur. *Fructus* non vidi.

If the structure of the leaves of *Jungermannia appendiculata* and *J. Thouarsii*, already figured in this work, excites our attention as differing most remarkably from what we have hitherto known of the genus, those who take delight in beholding the varying hand of Nature in her minutest productions will be no less gratified by the examination of the present species. In those just mentioned we perceive a lesser lobe or division of the leaf, arising from the surface or disk of the larger portion; but here, from the exterior surface of two distinct lobes, are lamellæ or plates, totally unlike any thing I am acquainted with in vegetable œconomy, running nearly the whole length of the lobes, and distinctly toothed. The extremities of the leaves are cut into lobules, or rather pinnules, as in *J. appendiculata*. Beneath the stipules are tufts of small scales, as there are likewise in another Menziesian *Jungermannia*, which I shall have occasion to publish.

Fig. 1, plant *nat. size*. Fig. 2, leaf and stipule. Fig. 3, leaf expanded. Fig. 4, apex of a lobe.—*magn.*

POLYTRICHUM ANGUSTATUM.

Polytrichum caule brevi, foliis lineari-lanceolatis undulatis, siccitate crispatis, versus apicem dorso margineque denticulatis, nervo lato lamellato, capsula erecta curvula, operculo brevi-subulato, calyptra glabra. (TAB. L.)

P. angustatum. *Brid. Hist. Musc. Suppl.* 1. *p.* 78. *Schwaegr. Sp. Musc. v.* ii. *p.* 331.

HAB. Prope Boston in America septentrionali. *D. Boott.* (In Carolinæ humosis *Cl. Bosc.* In Pennsylvania *Muhlenberg.* In Neomarchia lectum *Ill. Schultz.* dedere.) *Schwaegr. loc. cit.*

Caulis semiuncialis, simplex. *Folia* lineari-lanceolata, obtusiuscula, carnoso-membranacea, fusco-viridia, parum concava, transversim undulata, siccitate tortilia, dorso margineque versus apicem denticulata, denticulis sæpe geminatis, nervo lato, dorso lævi, intus in lamellas 4 vel rarius 5, longitudinales, undulatas producto. *Seta* uncialis, rubra. *Capsula* exacte cylindracea, fusca, erecta, paululum curvata. *Calyptra* subulata, glabra, fusca, apice intensiore, atque pilis paucis brevibus scabra. *Operculum* brevi-subulatum, capsulæ vix dimidiam longitudine. *Peristomium* e dentibus 32 apice membrana horizontali connexum.

The specimens here figured were communicated to my friend Mr. Lyell, by Francis Boott, Esq. of Boston, New England, a gentleman whose ardent thirst after botanical knowledge has induced him to visit this country; and who, in conjunction with Professor Bigelaw*, of Harvard University, is now preparing for publication a Flora of the New England States.

Although bordering very closely upon *Polytrichum undulatum*, this plant may with certainty be distinguished from it by the great breadth of the nerve and its distinct lamellæ, and by the shortness of the operculum. To these characters may be added the much narrower capsule, its less inclined direction, the narrower and more carnose leaves, and the much smaller size of the whole plant. Schwaegrichen does not seem in his specific character to have chosen those marks which will distinguish it from *P. undulatum*; and he has introduced into his synonyms plants of Michaux and Dillenius, which appear to me to be only varieties of *P. undulatum*, which is also a common plant in North America.

Fig. 1, plants *nat. size.* Fig. 2, inner view of leaf. Fig. 3, outer ditto. Fig. 4, capsule. Fig. 5, operculum. Fig. 6, calyptra.—*magn.*

* Already known as the author of *Florula Bostoniensis* and *American Medical Botany.*

Tab. L.

Polytrichum angustatum.

Tab. LV.

Heuchera hirsuticaulis

HOOKERIA RADICULOSA.

Hookeria caule repente vagè ramoso, ramis compressis subtus denudatis, supra foliosis, foliis ovatis subacuminatis integerrimis, nervo ultra medium evanescente, capsula ovata cernua, operculo rostrato curvato, calyptra basi integra. (TAB. LI.)

HAB. Crepidines juxta Caripe, locis scopulosis, temperatis, irriguis, altitudine 480 hexapod. *Humboldt et Bonpland.*

Caules repentes, ramosi, subtus foliis destituti, fibris numerosis fuscis radicantibus obsiti, lateribus facieque superne foliosi. *Folia* subcompressa, parum concava, ovata, subacuminata, nitida, flavo-viridia, omnino integerrima, nervo ultra medium evanescente instructa. *Substantia* compacta, minute punctata. *Perichætialia* magis acuminata, nervosa. *Seta* subunciam longa, flexuosa. *Capsula* ovata, cernua. *Calyptra* subulata, integra. *Operculum* conico-rostratum, flavum, rostro decurvo. *Peristomium*, ut in *Leskea*, flavescens.

Among the Humboldtian mosses a considerable portion belongs to the genus *Hookeria*, or such plants as have all the characters of a *Hypnum* or a *Leskea*, except the dimidiate calyptra. The present species differs from most of the family in having a single nerve to the leaf, and the under side of the stem destitute of leaves, as in *Anictangium torquatum*.

Fig. 1, plants *nat. size*. Fig. 2, upper side of a portion of the stem. Fig. 3, under side of ditto. Fig. 4, leaf. Fig. 5, apex of ditto. Fig. 6, perichætial leaves. Fig. 7, calyptra. Fig. 8, capsule and operculum. Fig. 9, ext. peristome. Fig. 10, int. ditto.—*magn.*

HOOKERIA SCABRISETA.

Hookeria caule suberecto, vage pinnatim ramoso, compresso, foliis undique imbricatis late ovatis subacuminulatis binervibus, seta scabra. (TAB. LII.)

HAB. Crepidines juxta Caripe, locis scopulosis, temperatis, irriguis, altitudine 480 hexapod. *Humboldt et Bonpland.*

Caulis erectiusculus, vage pinnatim ramosus. Rami compressi. *Folia* undique imbricata, subdisticha, late ovata, planiuscula, acuminulo perbrevi terminata, sub summo lente vix serrulata, nervis duobus ante apicem evanescente instructa. *Substantia* compacta e punctis minutissimis. *Seta* pilis brevibus, crassiusculis, rigidis, horizontalibus scabra vel potius hispida. *Capsulæ* maturæ desunt. *Calyptra* albida, elongato-campanulata vel mitriformis e basi ad medium in lacinias numerosas angustas fissa, superne corpusculis claviformibus horizontalibus instructa.

Of the genus of this plant, although I am not so fortunate as to possess ripe capsules, there can be no doubt; since in its habit, as well as in the leaves and calyptra, it has so great a conformity with the *Hookeriæ*. Nor can I be at a loss for a specific character, the calyptra being cleft into a number of long and narrow segments, as in some *Orthotricha* from the same country, and the fruitstalk being in a most remarkable degree hispid; in this respect resembling the *Neckera scabriseta* of Schwaegrichen.

Fig. 1, plants *nat. size.* Fig. 2, branch. Fig. 3, leaves. Fig. 4, point of ditto. Fig. 5, fruitstalk and immature capsule. Fig. 6, calyptra,—*magn.*

Tab. CII.

Schkuhria Centaurea

Tab LIII.

Ketmia pentaphylla

HOOKERIA PENDULA.

Hookeria caule decumbente ramoso, ramis pinnatis curvatis compressis, foliis undique imbricatis ovatis basi binervibus, capsula ovata nutante, operculo conico rostrato, calyptra carnosa pilosa basi fimbriata. (TAB. LIII.)

HAB. Regione temperata in jugis Andium. *Humboldt et Bonpland.*

Caulis palmaris, vage ramosus, ramis pinnatis decurvis attenuatis, compressis. *Folia* undique imbricata, subdisticha, ovata, obtusiuscula, parum concava, basi binervia; *substantia* compacta, punctulata. *Perichætialia* enervia, *ext.* brevia, obtusa, *int.* longissime attenuata, tortuosa. *Seta* bi-triuncialis, rubra. *Capsula* ovata, pendula. *Calyptra* mitriformis, carnosa, albo-flavescens, apice fusca, superficie pilis articulatis erectis corporibusque pistilliformibus obtecta, basi fimbriata. *Operculum* conico-subulatum, curvatum. *Peristomium Leskeæ*, dentibus *ext.* margine denticulatis, dorso linea media pellucida notatis; *int.* laciniis longitudinaliter perforatis.

This is one of the largest species which I am yet acquainted with of the genus *Hookeria*, and cannot be mistaken for any other. The leaves are similar to those of *H. pallescens* (*vide* TAB. XXXVIII.); but the rest of the plant is totally different, the calyptra especially, which is beset with the paraphyses (of Hedwig) as well as the pistilliform bodies, both of which are very numerous about the perichætium.

Fig. 1, plant *nat. size.* Fig. 2, portion of a stem. Fig. 3, leaves. Fig. 4, perichætium and calyptra. Fig. 5, outer, and Fig. 6, inner, perichætial leaf. Fig. 7, outer peristome. Fig. 8, inner ditto.—*magn.*

HOOKERIA FALCATA.

Hookeria caule procumbente, ramis erectis, foliis falcato-secundis, lanceolato-longe acuminatis, serratis, binervibus, capsula ovata horizontali, operculo subulato, calyptra basi 6- vel 8-fida. (TAB. LIV.)

HAB. In convallibus Andium Granatensium inter Almaguer et Pasto, altitudine 1200—1500 hexapod. *Humboldt et Bonpland.*

Caulis procumbens, ramis brevibus, erectis, sæpe simplicibus. *Folia* undique inserta, sed insigniter falcato-secunda, lanceolata, longe acuminata, serrata, binervia, nervis ante apicem evanescentibus. *Perichætialia* subenervia, ovata, tenuiter acuminata, serrulata. *Seta* sesquiunciam longa, flexuosa. *Capsula* ovata, horizontalis. *Operculum* subulatum. *Calyptra* mitriformis, glabra, ad apicem solummodo scabriuscula, basi sub-8-fida. *Peristomium* ut in *Hypno;* dent. *ext.* linea media pellucida.

At first sight this plant has much affinity with *H. uncinatum;* but it is a true *Hookeria*, having a calyptra like that of *Hookeria pallescens* (*vide* TAB. XXXVIII.), except that the divisions of it are shorter. The leaves will readily distinguish this species both from the one just mentioned, and from every other individual at present known of the genus.

Fig. 1, plant *nat. size.* Fig. 2, leaf. Fig. 3, perichætial leaf. Fig. 4, capsule. Fig. 5, calyptra. Fig. 6, outer peristome. Fig. 7, inner ditto.—*magn.*

Tab LIV.

Tab. XV

Blankenia Leskeoides.

HOOKERIA LESKEOIDES.

Hookeria caule procumbente, ramis erectis, foliis secundis deltoideo-acuminatis striatis apice serrulatis, nervo ante apicem evanescente, capsula oblonga erecta, operculo subulato, calyptra subulata integra. (TAB. LV.)

HAB. In sylvis Cinchonæ prope Loxam, regione temperata, altitudine 1080 hexapod. *Humboldt et Bonpland.*

Caules procumbentes. *Rami* erecti, simpliciter vel pinnatim ramosi. *Folia* undique inserta, secunda, deltoideo-acuminata, apice serrata, longitudinaliter striata, nervo ante apicem evanescente instructa. *Perichætialia* enervia, striata, serrulata, *int.* longe acuminata. *Seta* sesquiuncialis, flexuosa. *Capsula* oblonga, omnino erecta. *Operculum* subulatum, subobliquum. *Calyptra* mitriformis, subulata, lævis, integra, vel casu solummodo fissa. *Peristomium Leskeæ,* dentibus brevibus.

In one individual out of a great number of specimens which I have examined, I found the calyptra cleft on one side about a fourth of the length upward. This I suppose to be an accidental circumstance, as we know it sometimes to happen in the genus *Grimmia* and *Trichostomum;* and, taking it for granted that the veil is in reality mitriform, I place this plant among the *Hookeriæ,* though I regret to say it does not accord in habit with any other species of the genus. The general appearance of the plant is that of a *Neckera;* and its capsule is, as in that tribe and in most *Leskeæ,* erect. Those who have most studied the mosses will be best aware how difficult it is to form generic characters from the parts of fructification, which shall include only those individuals which appear allied by nature.

Fig. 1, plants *nat. size.* Fig. 2, leaf. Fig. 3, 3, perichætial leaves. Fig. 4, capsule. Fig. 5, calyptra. Fig. 6, portion of outer peristome. Fig. 7, portion of inner ditto.—*magn.*

HYPNUM? PATENS.

Hypnum? caule erecto ramoso, foliis horizontaliter patentibus undulatis rotundatis breviter acuminatis subintegerrimis, nervo tenuissimo fere obsoleto. (TAB. LVI.)

HAB. In convallibus Andium Granatensium inter Almaguer et Pasto, altitudine 1200—1500 hexapod. *Humboldt et Bonpland.*

Caulis digitalis vel spithamæus, erectus, flexuosus, ramosus, ramis iterum subpinnatim divisis, ramulis brevibus, obtusis. *Folia* dense undique inserta, horizontaliter patentia, subsquarrosa, mollia, pellucida, nigro-viridia, vel subpurpurascentia, superiora viridia; omnia rotundata, apice acuminulata, subserrulata, undulata, nervo tenui valde obsoleto instructa, atque sæpe versus apicem longitudinaliter canaliculata.

H. patens will rank near *H. molle*, but differs from it in its much larger size, acuminulated points, and very obsolete nerve. There is a groove or channel in some of the older leaves towards the point, which is particularly apparent when the leaf is raised on one side, as at fig. 3.

Fig. 1, plants *nat. size*. Fig. 2, 2, leaves. Fig. 3, side view of a leaf.—*magn.*

Tab. LVI.

Hypnum patens.

Edwards Sc.

Hypnum lucidum.

HYPNUM BIFARIUM.

Hypnum caule erecto subpinnatim ramoso, foliis distantibus bifariis lanceolatis marginatis serratis, nervo ad apicem attingente, capsula ovata horizontali, operculo rostrato curvato. (TAB. LVII.)

HAB. In sinu Dusky Bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Radix e fibris numerosis ferrugineo-fuscis dense tomentosis. *Caulis* pollicaris, erectus, flexuosus, plerumque pinnatim ramosus, ramis patentibus. *Folia* flavo-viridia, bifaria, disticha, erecto-patula, distantia, lanceolata, paululum concava, marginata, serrata, basi in caulem decurrentia, nervo ad summum apicem attingente instructa. *Perichætialia* acuminata, integerrima, immarginata, nervosa, fusco-viridia. *Seta* sesquiuncialis et ultra, rubra, flexuosa, prope medium caulis inserta. *Capsula* ovata, horizontaliter inclinata, subapophysata. *Operculum* hemisphæricum, rostratum, rostro curvato. *Peristomium* ut in plurimis *Hypnis*.

This very elegant species of *Hypnum* ranks naturally near *Leskeu Novæ Hollandiæ*, and *Hypnum distichum* of Swartz, in *Schrad. Diar. Bot. v.* iv. *t.* 3. Both these species, however, have simple stems, and their fruitstalks inserted at the very base of the stems. *H. bifarium* has the leaves decidedly thickened at the margin, and the back of the nerve, upward, under a high magnifying power, is also slightly toothed.

Fig. 1, plants *nat. size*. Fig. 2, portion of the stem and leaves. Fig. 3, leaf. Fig. 4, capsule. Fig. 5, operculum. Fig. 6, outer teeth of the peristome. Fig. 7, inner ditto.—*magn.*

HYPNUM NECKEROIDES.

Hypnum caule erecto inferne denudato, sursum pinnato, foliis undique imbricatis laxis ovatis obtusis apice serrulatis, nervo ante apicem evanescente, capsula oblongo-ovata inclinata. (TAB. LVIII.)

HAB. In sinu Dusky Bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caulis digitalis vel palmaris, inferne repens, ferrugineo-tomentosus, demum erectus, basi apiceque indivisus, medium versus pinnatim ramosus, ramis simplicibus, attenuatis. *Folia* laxe imbricata, patentia, mollia, ovata, obtusa, concava, apice minute serrulata, nervo satis valido, dorso denticulato, ante apicem evanescente instructa. *Perichætialia* acuminata, enervia. *Setæ* subaggregatæ, vix unciam longæ, crassiusculæ, fuscæ. *Capsula* ovato-oblonga, intense fusca, inclinata. Neque operculum neque calyptram vidi. *Peristomii* dentes flavi; *int.* perforati, processubus filiformibus duobus his interjectis.

According to the fructification, this plant must be considered as a *Hypnum*, although in general habit it accords best with the genus *Neckera*, and particularly with that species which I have denominated *N. planifolia* (TAB. XXIII.). Here however the stems are not at all compressed, the leaves are decidedly nerved, and the capsules of the two plants are widely different.

Fig. 1, plant *nat. size*. Fig. 2, portion of the stem and leaves. Fig. 3, leaves. Fig. 4, perichætial leaves. Fig. 5, capsule. Figs. 6, 7, portions of peristome.—*magn.*

Hypnum neckeroides

Trapa natans. Wasser-Kastanie.

JUNGERMANNIA FLAGELLIFERA.

Jungermannia caule erecto pinnatim ramoso, ramis flagelliformibus, foliis inæqualiter bilobis conduplicatis, lobis lobulisque ovato-lanceolatis acutis integerrimis, stipulis ovatis acute bifidis basi utrinque unidentatis. (TAB. LIX.)

HAB. In sinu Dusky Bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caulis palmaris et ultra, erectus, rigidus, dichotome divisus, pinnatim ramosus, ramis attenuatis, flagelliformibus, simplicibus, apicibus denudatis, *ramis fructificantibus* brevibus, apicem versus latioribus. *Folia* superne subarcte imbricata, horizontalia, bifaria, fusco-viridia, inæqualiter biloba, lobis conduplicatis, *anterioribus* majoribus, ovatis vel ovato-lanceolatis, acutis, hinc quandoque denticulo unico instructis, parum convexis, *posterioribus* minoribus, magis lanceolatis, acutis, integris, vel rarius bifidis (*f.* 4). *Substantia* reticulata, areolis parvis rotundatis. *Perichætialia* (*f.* 7) majora, vix conduplicata. *Stipulæ* ovatæ, profunde bipartitæ, basi utrinque denticulo grandiusculo instructæ, rarius quadrifidæ (*f.* 5): *ramis fructificantibus stipulæ* majores sunt, margine spinoso-dentatæ. *Calyces* non vidi.

This plant will come into the same family with *J. platyphylla* and *J. filicina*, and may be placed near the latter, though abundantly distinct from both. I have in my possession a *Jungermannia*, communicated to me by M. Richard from the Isle de Bourbon, that is scarcely to be distinguished from this except by the texture of the leaves, which in M. Richard's plant are curiously dotted in a similar manner to those of *J. Turneri* and *J. Woodsii*: but this circumstance, taken in conjunction with the very different places of growth and some other peculiarities, has determined me to keep the two plants distinct. Of *J. flagellifera* I have only seen very young fructification.

Fig. 1, sterile plant. Fig. 2, fertile ditto.—*nat. size.* Fig. 3, portion of the stem with leaves and stipule. Fig. 4, single leaf. Fig. 5, stipule. Fig. 6, stipule from among the perichætial leaves. Fig. 7, perichætial leaf. Fig. 8, portion of a leaf to show the reticulation.—*magn.*

JUNGERMANNIA PENDULINA.

Jungermannia caule erecto pinnatim ramoso, ramis pendulis flagelliformibus, foliis superne imbricatis stipulisque valde concavis rotundatis quadrifidis. (TAB. LX.)

HAB. In sinu Dusky Bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Caulis palmaris et ultra, erectus, flexuosus, rigidus, pinnatim ramosus, ramis distichis, quandoque secundis, simplicibus, vel basin versus iterum divisis, attenuatis, flagelliformibus, apice foliis destitutis. *Folia* flavo-viridia, superne sublaxe imbricata, rotundata, vel subquadrata, valde convexa, acute quadrifida, segmentis integerrimis. *Substantia* reticulata, areolis parvis. *Stipulæ* magnæ, foliis similes sed minores, segmentis longioribus. *Fructus* non vidi.

Totally different at first sight as this *Jungermannia* may appear from *J. reptans*; yet when the leaves and stipules come to be minutely examined, the similarity between them is so great, that I hardly know whether I am warranted in making this a distinct species. The marks upon which I rest my doing thus are, the much greater size of *J. pendulina*; its erect habit; its being regularly pinnated, with flagelliform and pendulous branches bare of leaves towards the extremities; and lastly, the difference of texture, which is here composed of small distinct reticulations, while in *J. reptans* the substance is elegantly dotted.

I may here observe that the *J. cupressina* of Swartz, whose description will be found in many points to accord with this species, does not appear to me to have any character which can essentially distinguish it from *J. reptans*, which is found in various distant countries.

Fig. 1, plants *nat. size*. Fig. 2, portion of the stem with leaves. Fig. 3, leaf. Fig. 4, stipule. Fig. 5, extremity of a leaf, to show the reticulation.—*magn.*

Tab. I.

Isopyrum pericula

TAB. LXI.

. Swinjermannia Billardieri.

JUNGERMANNIA BILLARDIERI.

Jungermannia caule erecto dichotome ramoso, foliis arcte imbricatis ovatis spinoso-denticulatis, stipulis magnis transversim oblongis denticulatis. (TAB. LXI.)

J. Billardieri. *Schwaegr. Musc. Hepat. Prodr. p.* 19.

HAB. In sinu Dusky Bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791. In insula Van Diemen. *D. La Billardière.*

Caulis plerumque erectus, simplex, vel dichotome divisus, ramis erectis. *Folia* dense imbricata, sordide fusco-viridia, planiuscula, ovata, margine spinoso-denticulata, inferne decurrentia. *Stipulæ* pro ratione plantulæ magnæ, foliorum fere magnitudine, valde convexæ, transversim oblongæ vel subhemisphæricæ, margine denticulatæ, basi subdecurrentes, et non raro spinoso-dentatæ. Foliorum stipularumque *substantia* mollis, reticulata, areolis grandiusculis.

The very large, transversely oblong and closely imbricated stipules will readily distingush this species from any other with which I am acquainted. I think I am correct in considering it to be the *J. Billardieri* of Schwaegrichen; his words being "J. caule erecto subramoso, foliis imbricatis ovatis acutis omni margine serratis, stipulis arcuatis dimidio minoribus;"—and I am the more inclined to think them one and the same plant, because M. La Billardière has given me very fine specimens, which he gathered in Van Diemen's Land, of the same species, but without a name.

Fig. 1, plant seen from its superior surface. Fig. 2, plant seen from inferior ditto, *nat. size.* Fig. 3, portion of a stem, upper side. Fig. 4, lower side. Fig. 5, leaf. Fig. 6, stipule.—*magn.*

GRIMMIA LONGIROSTRIS.

Grimmia caule erecto cæspitoso, foliis undique erecto-patentibus lanceolatis longe acuminatis incanis, seta exserta recta, capsula ovata, operculo longe rostrato. (TAB. LXII.)

HAB. Locis scopulosis, apricis, in declivitate montis Chimborazo, altit. 2380 hexapod. super porphyrite. (Regnum Quitense.) *Humboldt et Bonpland.*

Caules dense cæspitosi, erecti, versus apicem subramosi. *Folia* undique denseque imbricati, erecto-patentia, nigro-viridia, superne flavescentia, concava, lanceolata, in pilum longum diaphanum subserrulatum attenuata, nervo evanescente instructa. *Seta* vix semiunciam longa, erecta. *Capsula* ovata, vel oblongo-ovata, erecta, lævis, ore annulato. *Calyptra* mitriformis, basi subquinquefida, rarius lateraliter fissa (*f.* 6). *Operculum* subulatum, rectum, capsula paulo brevius. *Peristomii dentes* 16, lanceolati, integri, transversim striati, flavo-rubri.

It must be confessed that this moss comes very near to our *Grimmia ovata*, though it is of a much larger size, and altogether of a stouter habit. The main difference between them must however rest on the length of the operculum, which in the present plant is full three fourths of the length of its capsule. The calyptra, though a truly mitriform one, is sometimes seen to be so cleft on one side that it assumes the appearance of being dimidiate.

Fig. 1, tuft of plants *nat. size*. Fig. 2, single plant. Fig. 3, leaves. Fig. 4, calyptræ. Fig. 5, portion of a capsule, showing the annulus. Fig. 6, operculum. Fig. 7, teeth of the peristome.

Tab. LXII.

Grammitis longirostris

Gramma fusco-lutea.

GRIMMIA FUSCO-LUTEA.

Grimmia caule erecto cæspitoso, foliis undique erecto-patentibus lanceolatis longe acuminatis incanis, seta arcuata, capsula ovata lævi, operculo hemisphærico. (TAB. LXIII.)

HAB. In frigidis Tobeccæ et Islahuacæ, altitudine 1330 hexapod. (Regnum Mexicanum). *Humboldt et Bonpland.*

Caules dense cæspitosi, erecti, versus apicem subramosi. *Folia* undique sublaxe imbricata, erecto-patentia, fusco-viridia vel lutea, *superiora* pallidiora, concava, lanceolata, in pilum longum incanum serrulatum attenuata, nervo evanescente; *inferiora* breviora, obtusiuscula, concolora. *Seta* brevis, arcuata. *Capsula* ovata, annulata, flava. *Operculum* hemisphæricum, obtusum. *Peristomii dentes* 16, hic illic longitudinaliter perforati, rubri, transversim striati.

Much as the subject of the present plate resembles the moss last figured (*Gr. longirostris*) in its foliage, yet there is a very wide difference in their fructification, which in *Gr. fusco-lutea* is more like *G. pulvinata*, from which again the leaves are very dissimilar.

Fig. 1, tufts *nat. size.* Fig. 2, single plant. Fig. 3, leaf. Fig. 4, capsule. Fig. 5, portion of a capsule with the teeth of the peristome and annulus.—*magn.*

TRICHOSTOMUM VAGINATUM.

Trichostomum caule erecto ramoso, foliis late lanceolatis lateribus involutis, perichætialibus longe vaginatis, seta elongata, capsula oblonga, operculo subulato. (TAB. LXIV.)

HAB. In insula Otaheite, mare Pacifico. *D. Menzies*, 1792.

Caules biunciales, erecti, cæspitosi, valde ramosi. *Folia* obscure viridia, undique imbricata, patula, late lanceolata, concava, integerrima, lateribus insigniter involutis, nervo ad apicem fere attingente percursa. *Perichætialia* circa setam convoluta, *ext.* breviora, apice recurva, subnervosa, *int.* longissima, acuminata, enervia, vaginata. *Seta* uncialis, flavescens. *Capsula* oblonga, cylindracea. *Operculum* subulatum, capsula subæque longum. *Calyptra* angusta, mitriformis, basi integra. *Peristomium* 16-dentatum, *dentibus* angustis, flavo-rufescentibus, transversim striatis, ad basin usque fissis.

Trichostomum vaginatum has much of the habit of *Tortula tortuosa*, and still more of that of *Tr. polyphyllum*; but from both it differs in the shape of the leaves and in the curious perichætium.

Fig. 1, plants *nat. size.* Fig. 2, leaves. Fig. 3, perichætium. Fig. 4, 5, leaves of ditto. Fig. 6, calyptra. Fig. 7, capsule. Fig. 8, teeth of peristome.—*magn.*

Tab LXIV.

Thelastomum: virginianum.

Tab. CXCV.

1.

Polytrichum gigantéum.

Edwards Sculp.

POLYTRICHUM GIGANTEUM.

Polytrichum caule valde elongato subfastigiatim ramoso, foliis erectis lineari-subulatis rigidis, margine apicem versus solummodo parum involutis dorsoque scabris, setis numerosis, capsula ovato-cylindracea, operculo rostrato, calyptra pilosa. (TAB. LXV.)

HAB. In devexo montis Quindiu, ad radices *Ceroxyli andicolæ*, in temperatis usque ad altitudinem 1450 hexapodarum. *Humboldt et Bonpland.*

Caulis spithamæus vel etiam pedalis, crassus, rigidus, flexuosus, basin versus indivisus, radicibus parvis fibrosis instructus, sursum subfastigiatim ramosus. *Folia* arcte imbricata, erecta, intense fusca, lineari-subulata, rigida, basi vaginata, apice solummodo margine parum involuto dorsoque scabra; nervo totam superficiem folii occupante, striato. *Setæ* numerosæ, terminales, sed ob caulis innovationes sæpissime laterales, triunciales, crassiusculæ, rubræ. *Calyptra* pilosa, fusca. *Capsulæ* magnæ, inclinatæ, ovato-cylindraceæ, fuscæ. *Operculum* rostratum, curvatum, capsula duplo brevius. *Peristomium* ut in *P. communi.*

This remarkable plant, which exceeds in size our *P. commune*, has an affinity in its ramification and the form of its capsules with *P. alpinum*, and in its leaves with *P. juniperinum*. The leaves, however, are plain at their margins, except just at the point, where, as well as at the back, they are slightly toothed.

Fig. 1, plant. Fig. 2, calyptra, *nat. size*. Fig. 3, leaf. Fig. 4, apex of ditto.—*magn.*

POLYTRICHUM LONGISETUM.

Polytrichum caule elongato subsimplici, foliis patentibus lanceolato-subulatis planis rigidis integerrimis, nervo latissimo, seta longissima, capsula ovato-tetragona, operculo rostro subæque longo. (TAB. LXVI.)

HAB. In monte Quindiu, regione temperata. (Andes de Cundinamara.) *Humboldt et Bonpland.*

Caulis 3-4-pollicaris, erectus, rigidus, simplex vel divisus. *Folia* arcte imbricata, patentia, (siccitate erecta,) rigida, nigro-fusca, lanceolato-subulata, margine plana, omnino integerrima, nervo stricto totam partem folii occupante. *Seta* palmaris et ultra, flexuosa, flavo-rubra, ob caulis innovationes sæpe lateralis. *Capsula* erecta, vel demum horizontaliter inclinata, ovato-tetragona. *Operculum* longe rostratum, rostro capsulæ subæque longo, curvato.

In the present species the leaves are remarkable in having the nerve occupying the entire breadth of the leaf, in the margins of the leaves being not in the least involute, nor at all serrated. The leaves are likewise more patent than in any other individual of the genus with which I am acquainted; the fruitstalks are longer in proportion to the size of the plant, as is also the operculum.

Fig. 1, plants, *nat. size.* Fig. 2, leaf. Fig. 3, capsule and operculum.—*magn.*

Tab LXVII.

Polytrichum longisetum

Tab. LXVII.

Bartramia Menziesii

Durand Sculp.

BARTRAMIA MENZIESII.

Bartramia caule elongato ramoso, foliis erectis e basi lanceolata longe subulatis serrulatis strictis, setis longiusculis erectis. (TAB. LXVII.)

B. Menziesii. *Turner in Ann. of Bot. v.* 1. *p.* 525. *t.* 11. *f.* 4.

HAB. In plaga occidentali Americæ septentrionalis. *D. Menzies,* 1792.

Caules 3-4-pollicares, graciles, erecti, flexuosi, simplices vel subdichotomo-divisi, inferne tomento ferrugineo dense obsiti. *Folia* arcte imbricata, erecta, appressa, stricta, flavo-viridia, e basi lanceolata longe subulata, apicem versus præcipue serrata, margine inferne recurvo, nervo angusto, distincto. *Setæ* demum laterales, semiunciam longæ, erectæ. *Capsula* sphærica. Neque *operculum* neque *peristomium* vidi.

This very distinct species of *Bartramia* was named in honour of its discoverer, by Mr. Turner, in a most excellent paper on the genus, published in the first volume of the Annals of Botany. Hitherto it seems but little understood by the continental botanists, Schwaegrichen only placing it among his doubtful or little known species, and observing that "habitu similis *B. gracili,*" (*B. Œderi.*) From this latter, and indeed every other, this plant may be readily distinguished by its long slender stems, and appressed leaves which are broad at the base and lanceolate, and which terminate in a long narrow subulate point.

Fig. 1, plants, *nat. size.* Fig. 2, leaves.—*magn.*

BARTRAMIA LONGIFOLIA.

Bartramia caule elongato ramoso, foliis patentibus longissimis subulatis flexuosis minute serratis, setis longiusculis. (TAB. LXVIII.)

HAB. In devexis udis frigidis, montis Quindiu, super granato, altitudine 1400 hexapod. *Humboldt et Bonpland.*

Caulis 3-pollicaris et ultra, erectus, flexuosus, sæpe ramosus. *Folia* sordide viridia, arcte imbricata, patentia, longissime subulata, flexuosa, per totam fere marginem minute serrata, basi vaginata, nervo latiusculo, obscuro. *Setæ* terminales, demum laterales, vix unciam longæ, erectæ, flexuosæ, purpureæ. *Capsula* globosa, striata. *Operculum* conicum, obtusum.

From all the hitherto known species of *Bartramia* the present may be easily distinguished by its very long, spreading, flexuose and subulate leaves. That to which it most nearly approaches is the variety called *crispa* of *B. pomiformis*; but, independently of the greater length and narrowness of the leaves in the plant now under consideration, the nerve is by no means so distinct, but vanishes upwards into the substance of the leaf, as in *B. ithyphylla.* Its habit too resembles that of *B. squarrosa* of Turner, (*B. patens* Schwaegrichen,) but differs from it in wanting the very strait and rigid leaves.

Fig. 1, plant, *nat. size.* Fig. 2, leaf. Fig. 3, portion of do. Fig. 4, capsule.—*magn.*

Bartramia longifolia

Neckera dendroides

NECKERA DENDROIDES.

Neckera caule erecto bipinnatim ramoso, foliis bifariis planis apice serratis basi nervosis, *caulina* oblonga, *ramorum* ovato-rotundata, seta brevi exserta, capsula ovato-cylindracea. (TAB. LXIX.)

HAB. In insula Owhyhee. *D. Menzies*, 1793.

Caulis palmaris et ultra, inferne repens, fusco-tomentosus, demum erectus, rigidus, basi simplex, foliis fere destitutus, parte superna pinnatim divisus, pinnis numerosis, inferioribus longioribus flexuosis similiter divisis, superioribus brevioribus simplicibus. *Folia* bifaria, horizontalia, verticalia, flavo-viridia, nitida, plana, acutiuscula, apice serrato-dentata, basi nervo brevi, *caulina* oblonga, *reliqua* ovato-rotundata. *Perichætialia* squarrosa, lanceolata, flexuosa, integerrima. *Setæ* plures in caule et ramis, bilineares, flexuosæ. *Capsula* ovato-cylindracea, rufo-fusca, erecta. *Peristomium* flavum; *dentes ext.* graciles; *int.* perforati, basi membrana reticulata uniti.

With all the habit of a *Neckera* this plant is possessed of a peristome, which, according to the characters laid down by Hedwig, should constitute it a *Leskea*. I cannot, however, resolve on separating it from a genus in which *N. planifolia*, which it so very strongly resembles, is placed; of which latter species it may also be observed, that it possesses, in common with the subject of the present plate, the membrane uniting together all the interior teeth of the peristome. This is a very stately plant, having upright stems, bare of branches at the base, and thickly clothed above with bipinnated ones, which, as well as the leaves, are all regularly bifarious. Those of the main stems are strikingly like the leaves of *N. pennata*, while those growing on the branches are nearly orbicular.

Fig. 1, plant, *nat. size*. Fig. 2, leaf of the stem. Fig. 3, ditto of a branch. Fig. 4, perichætium and capsule. Fig. 5, perichætial leaf. Fig. 6, outer peristome. Fig. 7, inner ditto.—*magn.*

JUNGERMANNIA CLAVIGERA.

Jungermannia caule elongato repente, sub-bipinnatim ramoso, foliis distichis horizontalibus inæqualiter bilobis conduplicatis integerrimis, lobis rotundatis acutis, lobulis bifidis minutis, segmento uno claviformi-saccato, altero oblongo, stipulis quadrifidis margine revolutis integerrimis, *ramorum* segmentis duobus claviformibus saccatis, calyce axillari folioso, foliis integerrimis. (TAB. LXX.)

HAB. In sinu Dusky Bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caulis 3-4-pollicaris et ultra, repens, flexuosus, pinnatim divisus, pinnis horizontalibus, brevibus, simplicibus vel subpinnatis. *Folia* arcte imbricata, horizontalia, distichà, fusco-flavescentia, inæqualiter biloba, integerrima, *lobis* conduplicatis, superioribus seu majoribus rotundatis, spinulo terminatis, *inferioribus* seu *lobulis*, multo minoribus, bifidis, segmento uno saccato-claviformi, altero oblongo, margine recurvo. *Stipulæ* magnæ, quadrifidæ, segmentis marginibus reflexis, *ramorum* duobus interioribus saccato-claviformibus, *caulium* omnibus similibus. *Perichætialia* calycem omnino obtegentia parva oblonga integerrima. *Calyx* axillaris, ovatus.

The present curious plant belongs to the same division of the genus as *J. dilatata* and *J. Tamarisci*; like them having the lobule of the leaf or auricle terminated, at least on one of its segments, by a clubshaped vesicle. Here indeed these appendages are not confined to the leaf, for there are two on the middle segments of the stipule, and the whole underside of the plant has a most singular appearance from the number and regularity of the vesicles. The calyx, however, differs remarkably from *J. dilatata*, and the rest of its affinities, and more nearly resembles that of *J. juniperina*, being altogether covered by leaf-like scales.

Fig. 1, plant, *nat. size*. Fig. 2, portion of the plant, with young fructification. Fig. 3, underside of a leaf. Fig. 4, stipule from the branches. Fig. 5, stipule from the main stem. Fig, 6, calyx, cut open, showing the germen.—*magn.*

Jungermannia Lanceta

Edwards Sculp.

Tab XXXI.

Jungermannia pulcherrima

Crocarts Sculp.

JUNGERMANNIA PALPEBRIFOLIA.

Jungermannia caule elongato repente bipinnatim ramoso; foliis distichis, horizontalibus inæqualiter bilobis conduplicatis ciliato-spinosis, lobis rotundatis, lobulis bifidis minutis, segmento uno claviformi saccato, altero bi- trifido, stipulis quadrifidis ciliato-laciniatis, ramorum segmentis duobus claviformibus saccatis, calyce axillari folioso, foliis ciliatis. (TAB. LXXI.)

HAB. In sinu Dusky Bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caulis 6-4-pollicaris, repens, flexuosus, pinnatim divisus, pinnis horizontalibus brevibus iterum pinnatis, ramulis plerumque simplicibus. *Folia* arcte imbricata, horizontalia, disticha, fuscescentia, inæqualiter biloba, ciliato-spinosa, lobis conduplicatis; *superioribus* seu majoribus rotundatis acutis, caulium basin versus solummodo ciliatis; *inferioribus* seu *lobulis* multo minoribus, bifidis, segmento unico saccato-claviformi, intus spinigero, altero *caulium* oblongo, ciliato-spinoso, *ramorum* bi- trifido. *Stipulæ* majusculæ, quadrifidæ, in *caulium* segmentis omnibus lanceolatis, spinoso-dentatis, *ramorum* duobus lateralibus trifidis, duobus interioribus saccatis, clavatis, intus spinigeris. *Perichætialia* calycem obtegentia, oblonga, ciliata. *Calyx* axillaris, ovatus, apice quadrifidus. *Seta* vix calycem excedens. *Capsula* ovata, quadrifida.

In the last plate (TAB. LXX.) was given a *Jungermannia* which, like the present figure, had saccate or hollow claviform appendages, both upon the lesser lobe of the leaves and upon the stipules. There is also a considerable resemblance in the two plants in the colour, the general ramification, the foliaceous calyx, and the quadrifid stipules. *J. palpebrifolia* nevertheless differs from *J. clavigera* in the beautifully ciliated margins of the leaves, of the cauline stipules, and of the foliaceous scales of the calyx.

Fig. 1, plant, *nat. size.* Fig. 2, portion of the plant, with fructification. Fig. 3, cauline leaf. Fig. 4, leaf from a branch. Fig. 5, cauline stipule. Fig. 6, stipule from a branch. Fig. 7, portion of a leaf. Fig. 8, claviform appendage. Fig. 9, calyx dissected, showing the capsule and fruitstalk.—*magn.*

JUNGERMANNIA ERIOCAULA.

Jungermannia caudice compresso lineari pubescente, frondibus alternis ovatis bipinnatis, pinnis angustis linearibus glabris, nervo crasso, fructu axillari, calyce nullo,? corolla lineari-oblonga carnosa. (TAB. LXXII.)

HAB. In sinu Dusky Bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caudex repens vel procumbens, 3-6-pollicaris, linearis, flexuosus, compresso-planus, ubique pubescens, fuscus. *Frondes* numerosæ, alternæ, distichæ, patentes, rarius uno latere spectantes, ovatæ, bipinnatæ, fuscæ, pinnis linearibus, angustis, obtusis, carnoso-membranaceis, minute reticulatis, integerrimis, glabris, nervo crasso, intensiore fusco. *Calyx* nullus? *Corolla* lineari-oblonga, subcurvata, carnosa, hic illic corporibus pistilliformibus obsita.

The first aspect of the plant now under consideration induced me to believe it not specifically different from the *J. fucoides* of Swartz, which name is equally applicable to the present species, as it bears, both in texture and ramification, a great resemblance to the *Fucus cristatus* γ of Turner. But a more careful inspection, with a view to the drawing and description, satisfied me that I had fallen into an error; for not only are the segments of the fronds narrower,—with nevertheless a broader nerve, which gives to the whole plant a more carnose appearance,—but, what is a more important character, the caudex (or rachis of Swartz) which in *J. fucoides* is smooth, may in this species be observed to be covered on both sides with a short, brownish or ash-coloured pubescence, very apparent under a magnifying lens.

In those pubescent *Jungermanniæ* whose foliaceous branches, if I may thus express myself, arise from a trunk of a different or firmer texture, as is the case in *J. flabellata*, *J. trichomanis*, and the present species, I find the structure so very similar to that of many individuals of the fern tribe, that I cannot do better than employ the same terms for different parts of the plant as are adopted by Willdenow, in his volume on the Ferns in the *Species Plantarum*.

Fig. 1, plants, *nat. size*. Fig. 2, fronds, and portion of the caudex. Fig. 3, segment of a frond. Fig. 4, corolla. Fig. 5, young capsule.—*magn.*

Jungermannia crenulata

Edwards Sp.t

Tab. LXXIII.

Trichostomum pericheetiale

TRICHOSTOMUM PERICHÆTIALE.

Trichostomum caule erecto ramoso, foliis lanceolatis tenuiter acuminatis, perichætialibus longe vaginatis, seta elongata, capsula oblonga. (TAB. LXXIII.)

HAB. In sinu Dusky Bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caules sesquipollicares, cæspitosi, erecti, ramosi. *Folia* obscure sed luteo-viridia, undique imbricata, erecto-patentia, lanceolata, tenuiter acuminata, subcanaliculata, nervo ad apicem usque attingente percursa. *Perichætialia* circa setam arcte convoluta, *ext.* breviora, omnia oblonga, nervosa, nervo in acumen longum angustum desinente. *Capsula* oblongo-cylindracea. *Operculum*, calyptra atque peristomium desunt.

It is only from the close analogy of this plant to *Trichostomum vaginatum*, figured at *tab.* 64, that I am induced to place it in that genus; for not only are my specimens destitute of a perfect peristome, but also of the calyptra and operculum. So nearly indeed are the two species allied that an inexperienced eye might, on their first aspect, judge them to be the same. In the subject of the present plate the leaves when carefully examined will be found to be never involute at their margins, also to be much longer, and very gradually acuminated; and the latter character is remarkable in the perichætial leaves.

Fig. 1, plant, *nat. size*. Fig. 2, 2, leaves. Fig. 3, perichætium. Fig. 4, perichætial leaf. Fig. 5, capsule.—*magn.*

HYPNUM STOLONIFERUM.

Hypnum caule repente inferne denudato, ramis erectis pinnatim ramosis, foliis undique imbricatis erectis ovato-ellipticis acuminatis serratis, nervo ultra medium evanescente, seta breviuscula, capsula ovata cernua. (TAB. LXXIV.)

HAB. In plaga occidentali Americæ occidentalis. *D. Menzies*, 1787.

Caulis repens, flexuosus, inferne denudatus, superne ramosus, atque hic illic stolonifer, stolonibus folioso-squamosis, radicantibus, ramis numerosis, brevibus, erectis, simplicibus vel pinnatim divisis, attenuatis. *Folia* lutescente-viridia, nitida, erecta, appressa, undique imbricata, ovata, vel ovato-elliptica, attenuata, serrata, *terminalia* magis attenuata, omnia substriata, nervo supra medium evanescente instructa. *Perichætialia* squarrosa, tenuiter acuminata, fere enervia, subintegerrima. *Seta* vix unciam longa, subcurvata, lævis. *Capsula* ovata, cernua, fusca. *Peristomium* flavum, ut in *Hypni* genere.

The great resemblance of this plant to *Hypnum curvatum* and *H. myosuroides* will strike even the most casual observer; while from the former it will be found to differ in the more acuminated and far more serrated leaves; from the latter in the broader and more elliptical ones; and from both in the drooping capsule and much larger size of the whole plant. Like the species just mentioned, Mr. Menzies also observes of this, that it grows suspended from the branches and about the roots of trees in the north-west coast of America.

Fig. 1, plant, *nat. size*. Fig. 2, leaves. Fig. 3, 3, leaves. Fig. 4, perichætium, fruitstalk, and capsule. Fig. 5, teeth of outer peristome. Fig. 6, portion of inner peristome.—*magn.*

Tab. XXXII

Hypnum stolonifrum

Tab LXXV.

Polytrichum tenuissimum

POLYTRICHUM TENUIROSTRE.

Polytrichum caule brevi simplici, foliis patentibus lanceolatis obtusis subflexuosis canaliculatis integerrimis, nervo subangusto lamellato, capsula ovata, operculo longe-subulato. (TAB. LXXV.)

HAB. In sinu Dusky Bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caules cæspitosi, semipollicares, simplices, erecti, rigidi. *Folia* sublaxe imbricata, patentia, nigro-fusca, carnoso-membranacea, subflexuosa, lanceolata, obtusa, canaliculata, omnino integerrima, nervo satis angusto, e lamellis longitudinalibus 4 v. 5. *Seta* pro ratione plantæ longa, bipollicaris et ultra, rubra, superne flavescens. *Capsula* exacte ovata. *Operculum* longe-subulatum, capsula paulo brevius, subobliquum. *Peristomium* dentibus triginta duo, ad apicem membrana horizontali pallide flavescente connexis. *Calyptram* non vidi.

I regret much the not possessing the calyptra of this species, which in its leaves comes nearest perhaps to *Polytrichum hercynicum*, but in other particulars is very different. Indeed its quite entire leaves, (of which the texture is like that of the last-mentioned species and *P. undulatum* and *angustatum*,) together with the narrow nerve, exactly ovate capsule and subulate lid, will keep it distinct from any other with which I am acquainted.

Fig. 1, 1, plants, *nat. size*. Fig. 2, 2, leaves. Fig. 3, capsule and lid. Fig. 4, peristome.—*magn.*

DIDYMODON ? SPLACHNIFOLIUM.

Didymodon ? caule subelongato simplici, foliis ligulatis reticulatis integerrimis, nervo sub summum apicem evanescente, seta breviuscula, capsula cylindracea operculo conico. (TAB. LXXVI.)

HAB. In insulis Antillarum. *Prof. Richard.* E S^ti^ Dominici insula communicavit *D. Coulon.*

Caules cæspitosi, vix unciam longi, simplices vel per innovationem nunc divisi, graciles, rubescentes, erecti. *Folia* laxe imbricata, erecto-patentia, ligulata, obtusa, parum concava, subundulata, tenerrima, laxe reticulata, margine omnino integerrima, nervo sub summum apicem evanescente instructa. *Seta* terminalis, vel ob innovationem lateralis, 3-4-linearis, flavo-rufa. *Capsula* elongato-cylindracea, flavo-rufa, erecta, stricta. *Operculum* exacte conicum, flavum, basi rufum. *Calyptra peristomiumque* perfectum desunt.

The teeth of my specimen of this moss are too imperfect to allow me to ascertain decidedly whether it belongs to the genus *Didymodon*,—yet I think that it is certainly a species either of that or of the genus *Weissia*,—but to whichever of these it be referred, there can be no doubt of its being entirely distinct from any hitherto described plant: and from the similarity of its leaves to those of some species of *Splachnum* I have derived its trivial name. I have received specimens of this plant both from the learned Professor Richard of Paris, and from M. Coulon of Neufchâtel, a gentleman to whom I am indebted for many interesting cryptogamic subjects from the West Indies.

Fig. 1, tuft of plants, *nat. size.* Fig. 2, single plant. Fig. 3, leaf. Fig. 4, capsule. Fig. 5, operculum.—*magn.*

Tab LXXVI.

Dicranodon splachnifolium

Edwards Sculpt

Hypnum immersum

Edwards Kupf.

HYPNUM MNIOIDES.

Hypnum caule erecto ramoso, foliis undique imbricatis erecto-patentibus flexuosis siccitate tortuosis lineari-lanceolatis, marginibus serratis, nervo attingente, capsula suberecta ovato-cylindracea. (TAB. LXXVII.)

HAB. Staten Land prope Cape Horn. *D. Menzies*, 1787.

Caules bi-tripollicares, erecti, flexuosi, basi ferrugineo-tomentosi, superne ramosi, ramis subfastigiatis paululum curvatis. *Folia* undique imbricata, lurido-viridia, erecto-patentia, flexuosa, lineari-lanceolata, paululum carinata, marginata, serrata, siccitate crispata, nervo dorso serrato, valido, ad apicem attingente percursa. *Perichætialia* nervosa, ovata, longe acuminata, acumine flexuoso, serrato. *Seta* sub-bipollicaris, erecta, flexuosa, rubra, prope basin ramorum inserta. *Capsula* erecto-curvula, ovato-cylindracea, fusca. *Calyptra* et operculum desunt. *Peristomium* ut in *Hypno*.

Two other individuals of the genus *Hypnum* (*H. basilare* and *spiniforme*) have the same remarkable upright and Bryum-like mode of growth as the present species, which differs from the former in its having leaves which are narrower and marginated, and not at all bifarious, and in its nearly erect capsules, and which may be immediately distinguished from the latter by its almost erect, less rigid and broader leaves, and by the insertion of the fruitstalk, which, while it is in the present plant at the origin of the branches, is in *H. spiniforme* at the very base of the plant, among the roots. Authors have described *H. spiniforme* as having distichous leaves, which is not the case in my specimens; so that it and *H. mnioides* will rank in the same division of the genus, and ought to be placed close to each other.

Fig. 1, 1, plants, *nat. size*. Fig. 2, 2, leaves. Fig. 3, extremity of a leaf. Fig. 4, perichætial leaf. Fig. 5, capsule. Fig. 6, teeth of *ext.* peristome. Fig. 7, teeth of inner do.—*magn.*

JUNGERMANNIA SQUARROSA.

Jungermannia caule elongato erecto subsimplici squamoso, foliis densissime imbricatis distichis squarrosis subquadratis undulatis, bilobis, lobis cuspidatis integerrimis vel unidentatis, stipulis magnis bifidis segmentis ovatis cuspidatis margine laciniatis. (TAB. LXXVIII.)

J. squarrosa. *Menz. MSS.*

HAB. In sinu Dusky Bay dicto. *D. Menzies*, 1787.

Caulis palmaris, erectus, flexuosus, rigidus, squamosus, squamis minutis, lanceolatis, laciniatis, simplex vel ad apicem solummodo per innovationem divisus. *Folia* fusco-lutescentia, densissime imbricata, disticha, squarrosa, semiamplexicaulia, late quadrata, undulata, biloba, lobis subinæqualibus patentibus cuspidatis integerrimis vel basi hinc spinoso-dentatis. *Substantia* compacta, reticulis minutis. *Stipulæ* foliis duplo minores, late ovatæ, bifidæ, segmentis ovatis, cuspidatis, margine laciniatis. *Fructificationem* non vidi.

So very thickly are the leaves and stipules crowded upon the stems of this plant, that it is not without great difficulty that their real structure is discoverable. It differs in many particulars from any species hitherto described, but comes nearest to one figured in the next plate from the Isle de Bourbon, and will probably rank in the same division with *J. trilobata*. I have already noticed as being squamose, the stems of another Jungermannia (*J. lamellata*), though they are not so much so as in the present plant.

Fig. 1, plants, *nat. size.* Fig. 2, portion of stem, leaves and stipules, seen from behind. Fig. 3, upper side of a portion of the stem and leaves. Fig. 4, stipule. Fig. 5, leaf. Fig. 6, cauline scale.—*magn.*

Tab. LXXVIII.

Tab. LXXIX.

Juniperus fimbriata

JUNGERMANNIA FIMBRIATA.

Jungermannia caule elongato erecto subsimplici squamoso, foliis densissime imbricatis distichis squarroso-recurvis bifidis, segmentis ovatis cuspidatis ciliato-spinosis, stipulis bifidis segmentis lanceolatis recurvis ciliato-spinosis, calyce terminali oblongo plicato. (TAB. LXXIX.)

J. fimbriata. *Rich. MSS.*

HAB. In Insula Borboniæ. *Prof. Richard.*

Caulis 3-4-pollicaris, erectus, flexuosus, rigidus, squamosus, squamis parvis angustis laciniatis, simplex vel prope apicem per innovationem divisus. *Folia* fusco-lutescentia, densissime imbricata, disticha, squarrosa, semiamplexicaulia, undulata, late ovata, bifida, segmentis æqualibus plerumque recurvis, cuspidato-acuminatis, marginibus recurvis elegantissime ciliato-spinosis. *Substantia* compacta, reticulis minutis. *Stipulæ* magnæ, ovatæ, bifidæ, segmentis recurvis cuspidato-acuminatis, marginibus recurvis, ciliato-spinosis. *Calyx* terminalis, vel per innovationem caulis lateralis, oblongus, plicatus.

This and the immediately preceding species of *Jungermannia* (*J. squarrosa*), though coming from very different parts of the world and from totally different climates, have nevertheless a very great affinity with each other in the mode of growth, colour, the scaly stalk, the texture, and the general form and direction of the leaves and stipules. The principal points of distinction between them will be found to be the much smaller size of *J. fimbriata*, and its having the leaves and stipules narrower and more deeply cleft, with their segments recurved and their margins most beautifully ciliated.

Fig. 1, plants, *nat. size.* Fig. 2, portion of the stem with leaves and stipules, upper side. Fig. 3, stipule on the stem. Fig. 4, leaf. Fig. 5, stipule removed from the stem. Fig. 6. cauline scales.—*magn.*

JUNGERMANNIA MICROPHYLLA.

Jungermannia caule erecto pinnatim ramoso, ramis pendulis capillaribus, foliis distantibus oblongo-quadratis, stipulisque lato-quadratis minutis planis quadrifidis. (TAB. LXXX.)

J. sertularioides.* *Menz. MSS.*

HAB. In sinu Dusky Bay dicto, apud Novam Zeelandiam. *D. Menzies.* Ex Insula Guadaloupe miserunt *Prof. O. Swartz* et *D. Palisot de Beauvois.*

Caulis palmaris, erectus, flexuosus, rigidus, pinnatim ramosus, ramis distichis, raro secundis iterum divisis, capillaribus deflexis. *Folia* minutissima, fusco-viridia, distantia, appressa, plana vel superne subconvexa, oblongo-quadrata, quadrifida, segmentis angustis strictis. *Substantia* reticulata, areolis parvis, rotundato-quadratis. *Stipulæ* foliis minores lato-quadratæ, quadrifidæ, segmentis brevibus rectis angustis. *Fructificatio* ignota.

At TAB. LX. of this work is given a Jungermannia, (*J. pendulina*) which is only to be distinguished from *J. reptans* by the different mode of growth and ramification. The present plant altogether resembles that in its size, mode of growth, and ramification; yet the extreme minuteness of the leaves and stipules, and the distance at which these are placed from one another are so striking, that none would perhaps hesitate at first sight in pronouncing it distinct. But when these differences are pointed out, (and they are very constant in all the specimens which I possess,) nearly all that can afford marks of discrimination between the present plant and *J. pendulina* are mentioned; for, on subjecting the leaves of the former to a high power of the microscope, they will be only found to differ from those of the latter in their extreme minuteness, their more quadrate figure and nearly plane surface.

The specimens which I have received from Guadaloupe are smaller, and of a paler and yellower green, but are like those of Mr. Menzies in every other particular.

Fig. 1, J. microphylla, *nat. size.* Fig. 2, portion of a branch. Fig. 3, upper side of a portion of the branch. Fig. 4, under side of ditto. Fig. 5, leaf. Fig. 6, stipule.—*magn.*

* I should gladly adopt this expressive name, if it had not been applied by some authors to *J. setacea.*

Jungermannia microphylla.

Brunkh. Tab.

Tab. LXXXI.

Polytrichum lævigatum

POLYTRICHUM LÆVIGATUM.

Polytrichum caule simplici, foliis arcte imbricatis ovatis concavis integerrimis, nervo crasso lamellato, capsula late ovata cernua, calyptra lævi. (TAB. LXXXI.)

P. lævigatum. *Wahl. Fl. Lapp.* p. 349.

P. glabratum. *Wahl. MSS.—Mackenzie's Iceland,* p. 434.

Catharinea glabrata. *Hook. Tour in Iceland,* vol. 1. p. 24.

HAB. In nuda arena riparia aprica fluminis Muconio, prope pagum Muconio superiorem et Ketkes-servando, Lapponiæ sylvaticæ Tornensis, frequentissime. *Wahl. l. c.*—Locis sterilibus Islandiæ.

Radix densissime tomentosa. *Caules* cæspitosi, bi-trilineares, simplices, curvuli. *Folia* arcte imbricata, erecta, appressa, pallide fusco-viridia, v. lutescentia, ovata, concava, subcarnosa, omnino integerrima, nervo lato intus insigniter lamellato, lamellis undulatis. *Perichætialia* reliquis minora, angustiora, fuscescentia. *Seta* crassiuscula, subtrilinearis, flexuosa, rufo-fusca. *Capsula* rufo-fusca, late ovata, horizontaliter inclinata. *Calyptra* omnino pilis destituta.

P. lævigatum affords an excellent specimen of the curiously lamellated nerve of the leaf, which in a greater or less degree is common to all the species of the genus which have come under my observation. Wahlenberg, its first and indeed only describer, mentions the back of the leaf as having this appearance, if I understand his words rightly, "*foliorum dorsum undulatim dilatatur,*" which is not the case with my specimens; yet there can, I think, be no doubt as to the identity of the plant. Schwaegrichen has quoted it, though doubtfully, under the *P. lævigatum* of Bridel, which has leaves that are marginate and serrulate, and with which it can therefore have no affinity.

Fig. 1, tuft of plants, *nat. size.* Fig. 2, the same, *magn.* Fig. 3, leaf. Fig. 4, section of a leaf to show the structure of the nerve. Fig. 5, perichætial leaf.—*magn.*

Musci Exotici.—*Richardiani.*

DICRANUM? FALCIFOLIUM.

Dicranum ? caule elongato ramoso, foliis verticalibus distichis inæqualibus falcatis acinaciformibus, seta terminali, capsula ovato-pyriformi. (Tab. LXXXII.)
Fissidens falcifolius. *Schwaegr. Suppl.* v. 2. p. 9.

Hab. In insula Borboniæ. *D. Prof. Richard.* In Hispaniola *Thuillier,* arboribus innatum.

Planta valde singularis et vix rite hujusce generis. *Caulis* vix unciam longa, erecta, flexuosa, ramosa. *Folia* perpulchra, aureo-flava, nitidissima, caulis duobus lateribus inserta, verticalia, exacte disticha, plana, falciformia, integerrima, apice acuta, nervo arguto, fusco, propre marginem inferiorem, percursa. *Perichætialia* angustiora, minus falcata, basi concava. *Seta* terminalis, subuncialis, flexuosa, rufa. *Capsula* rufo-fusca, ovato-pyriformis, erecta. *Operculum* conicum, subobtusum. *Calyptram Peristomiumque* non vidi.

I am indebted to the learned Professor Richard of Paris for specimens of this most remarkable and beautiful moss, whose habit at first sight certainly resembles those species of *Dicranum* which Hedwig and most of his followers have called *Fissidens,* and in that genus Schwaegrichen has already placed it: He, however, appears to have been equally unfortunate with myself in not being able to describe the *Peristomium.* Besides the curious form of the leaf, much more scymitar-shaped than that of *H. trichomanoides,* there is a striking peculiarity in the nerve, which in most mosses is placed in the centre of the leaf, whilst here it runs close along the lower margin; in this respect approaching the structure of the leaf of the *Fissidentes,* but wanting the dilated and conduplicate base. Here too, unlike the species of that genus, the leaves spring alternately from the anterior and posterior sides of the stem.

Fig. 1, plant, *nat. size.* Fig. 2, single plant. Fig. 3, portion of a stem with leaves. Fig. 4, single leaf. Fig. 5, perichætial ditto.—*magn.*

Tab LXXXII.

Tab LXXXIII.

Hypnum undulatum.

Musci Exotici.—*Humboldtiani.*

HYPNUM ANDICOLUM.

Hypnum caule breviusculo vage bipinnatim ramoso, foliis undique imbricatis ovato-lanceolatis acuminatis obscure serrulatis enervibus, capsula ovato-cylindracea, erecta, operculo rostrato. (Tab. LXXXIII.)

Hab. In crepidinibus Andium inter Tulcan et Quito. *Humboldt et Bonpland.*

Caules laxe cæspitosi, sesquiunciales, vage bipinnatim ramosi, ramulis plerumque brevibus obtusis. *Folia* undique imbricata, erecto-patentia, flavo-viridia, ovato-lanceolata, acuminata, parum concava, obscure serrulata, omnino enervia. *Perichætialia* his simillima sed angustiora, interiora magis acuminata. *Setæ* numerosæ, breviusculæ. *Capsula* intensè fusca, ovato-cylindracea, erecta vel leviter inclinata. *Operculum* rostratum, rostro curvato.

This is a small and obscure species, having no striking character by which it may be readily distinguished from its numerous congeners, yet not exactly agreeing with any one hitherto published. It is probably a *Leskea*, judging at least from its erect capsule which is so common in that genus; but although my specimens possess capsules with peristomes, yet this part is so minute and so extremely fragile that I am unable to satisfy myself as to the true structure of its inner teeth.

Fig. 1, plants, *nat. size.* Fig. 2, portion of a plant. Fig. 3, leaves. Fig. 4, perichætial leaf. Fig. 5, inner ditto. Fig. 6, capsule. Fig. 7, operculum.—*magn.*

HYPNUM ELEGANTULUM.

Hypnum caule elongato repente pinnatim ramoso, foliis patentibus late-ovatis acuminatis serratis enervibus, seta elongata, capsula ovato-cylindracea cernua, operculo rostrato. (TAB. LXXXIV.)

HAB. Vallis de Aragua (Prov. Venezuel) America meridionali. *Humboldt et Bonpland.*

Caules laxe cæspitosi, repentes, pinnatim ramosi, ramis distantibus plerumque brevibus, simplicibus. *Folia* laxe imbricata, patentia, pallide viridia, late ovata, concava, subbreviacuminata, subplicata, serrulata, omnino enervia. *Perichætialia* squamosa, lineari-lanceolata, flexuosa. *Seta* sesquiuncialis, erecta, gracilis, flavo-rufescens. *Capsula* ovato-cylindracea, horizontaliter cernua, viridi-fusca. *Operculum* rostratum, flavo-rufescens, rostro brevi. *Peristomium* longum, dent. ut in *Hypno*.

The distantly placed branches, the regularly patent leaves, the long slender fruitstalks and pale green colour of the whole plant, give to this little moss rather an elegant appearance, whence I have derived its specific name. In habit it comes nearest to some of the straggling varieties of *H. prælongum*, but in the shape and direction of the leaves and their being destitute of a nerve it will be found to approach *H. patens*, TAB. LVI. of this work. It is altogether very different from any other species I am acquainted with.

Fig. 1, plant, *nat. size.* Fig. 2, portion of a leaf. Fig. 3, leaves. Fig. 4, perichætium. Fig. 5, perichætial leaf. Fig. 6, capsule. Fig. 7. outer peristome. Fig. 8, inner ditto.—*magn.*

Tab. LXXXIX.

1.

Hypnum elegantulum

Swartz Sp.r

Tab LXXXV.

Juniperus sabina fuscidea.

JUNGERMANNIA FUCOIDES.

Jungermannia caudice compresso lineari glabro, frondibus alternis ovatis subbipinnatis, pinnis latiusculis linearibus, nervo subangusto (fructu axillari, corolla tereti longiusculo carnoso *Sw.*). (TAB. LXXXV.)

J. fucoides. *Swartz Fl. Ind. Occ.* p. 1872.

HAB. Inter muscos in depressis umbrosis montium altissimorum Jamaicæ australis. *Dr. O. Swartz.*

Caudex erectus, bipollicaris ad digitalem, simplex, rarius ramosus, linearis, flexuosus, compresso-planus, fuscus, omnino glaber. *Frondes* subdistantes, alternæ, rarius oppositæ, distichæ vel ad unum latus spectantes, patentes, circumscriptione ovatæ, pinnatæ, nunc iterumque divisæ, fusco-rufescentes, pinnis linearibus, latiusculis, apice obtusis, membranaceis, evidentissime reticulatis, integerrimis, glabris, nervo satis angusto intensiore fusco, glabro præditæ; siccitate curvulæ. *Fructificationes* non vidi, sed secundum cel. Swartz "axillares, quasi dorsales, antrorsum recurvæ, solitariæ. *Perianthium* teres, longiusculum, carnosum, nudum, basi vix ciliatum, curvum. *Seta* erecta, semiuncialis, alba, crassiuscula. *Capsula* oblonga, atropurpurea. *Valvulæ* obtusæ." *Sw. l. c.*

It is with much pleasure that I acknowledge the kindness of Professor Swartz, who has enabled me to publish this species which in so many particulars agrees with the *Jungermannia eriocaula*. (TAB. LXXII.) In addition to the differences between them there noticed, I may add that *J. fucoides* has the fronds (pinnæ of Swartz) more distantly placed, their divisions far less numerous, more patent, broader, more decidedly reticulated, of a browner colour inclining to reddish, of a thinner texture, and having a nerve much narrower in proportion to the diameter of the segments.

Fig. 1, 1, 1, plants, *nat. size.* Fig. 2, portion of the caudex and a frond.—*magn.*

JUNGERMANNIA REPANDA.

Jungermannia caule repente ramoso, ramis erectis, foliis exacte distichis arcte imbricatis horizontalibus oblongo-ovatis planis, basi insigniter decurrentibus omnino integerrimis. (TAB. LXXXVI.)

J. repanda. *Schwaegr. Hist. Musc. Hep. Prodr.* p. 26.

HAB. In insula Franciæ. *D. Du Petit Thouars.*

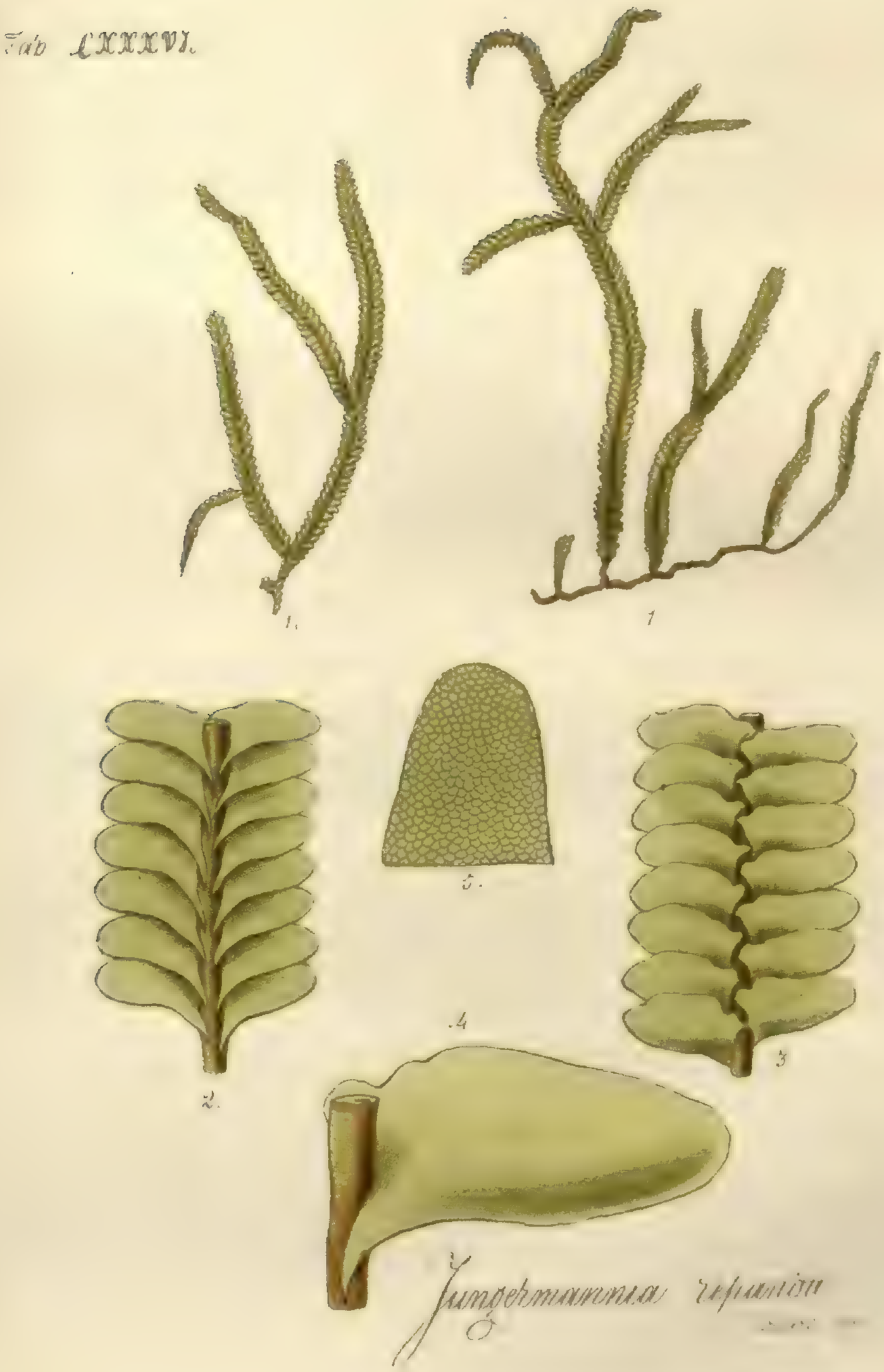
Caulis repens filiformis foliis plerumque destitutus, ramosus, ramis bi-triuncialibus erectis, iterum ramosis, ramulis plerumque patentibus, attenuatis. *Folia* obscure viridia arcte bifariam imbricata exacte disticha, verticalia, horizontaliter patentia, plana, ovato-oblonga, omnino integerrima, basi inferna insigniter decurrentia, superna subemarginata et undulata. *Substantia* minutissime reticulata.

This species undoubtedly belongs to the same natural family of *Jungermanniæ* as *J. asplenioides*, *J. spinulosa* and *J. dichotoma*, (*Carpolopedium dichotomum* of P. de Beauvois,) differing from all in the quite entire margins of the leaves, but most resembling the last mentioned plant. The fructification is unfortunately unknown.

Schwaegrichen has placed this plant in his division "*foliis dentatis*," but in all my specimens I have observed that the leaves are entire.

Fig. 1, 1, plants, *nat. size*. Fig. 2, upper portion of a stem and leaves. Fig. 3, under ditto. Fig. 4, leaf.—*magn.*

Tab LXXXVI.



Jungermannia reflexa

Tab. LXXXVII.

Jungermannia Rhizobola.

Edwards Sc.

JUNGERMANNIA RHIZOBOLA.

Jungermannia stipitata, frondibus oblongis dichotomis nervosis, marginatis denticulatis, apice longissime attenuata radicante. (TAB. LXXXVII.)

J. rhizobola. *Schwaegr. Musc. Hep. Prodr.* p. 31.

HAB. In insula Borboniæ. *D. du Petit Thouars.*

Stipes semiuncialis, filiformis, subcompressus, flavescens. *Frons* ovato-oblonga, membranacea, pulcherrime reticulata, pallide virescens, pellucida, rarius simplex plerumque dichotome divisa, undulata, margine incrassata, dentato-serrata, denticulis distantibus, obtusa, vel plerumque in apicem filiformem radicantem stipiti omnino simillimam sed multo longiorem attenuata, nervo satis angusto, viridi percursa.

This remarkable plant, of which the specimens so liberally communicated to me by its discoverer, possess, I regret to say, no fructification, will rank, so far as can be ascertained by habit, with *J. Lyellii*, *J. hibernica*, *J. flabellata*, and *J. Hymenophyllum*: differing from all, however, in the thicker margins of the fronds, and especially in the curiously lengthened extremities of the apices, which strike root into the ground, and are scarcely to be distinguished from the stipes but by their greater length.

M. du Petit Thouars had given to this plant the specific name of *J. radicans;* but besides that this appellation had been already given by some authors to *J. trilobata* of Linnæus, Schwaegrichen seems clearly already to have described this species in his *Musc. Hepat. Prodromus*, applying to it there the name *rhizobola*, though without mentioning by whom it was discovered.

Fig. 1, plants, *nat. size.* Fig. 2, single plant.—*magn.*

JUNGERMANNIA SERRULATA.

Jungermannia caule erecto dichotomo, foliis distichis v. secundis subrotundis subconduplicatis spinuloso-dentatis apice emarginatis, stipulis magnis rotundatis convexis spinuloso-dentatis apice emarginatis, calyce cylindraceo ore dentato. (TAB. LXXXVIII.)

J. serrulata. *Swartz Fl. Ind. Occ.* p. 1854. *Schwaegr. Hist. Musc. Hep. Prodr.* p. 19.

J. Aubertii. *Schwaegr. Hist. Musc. Hep. Prodr.* p. 19.

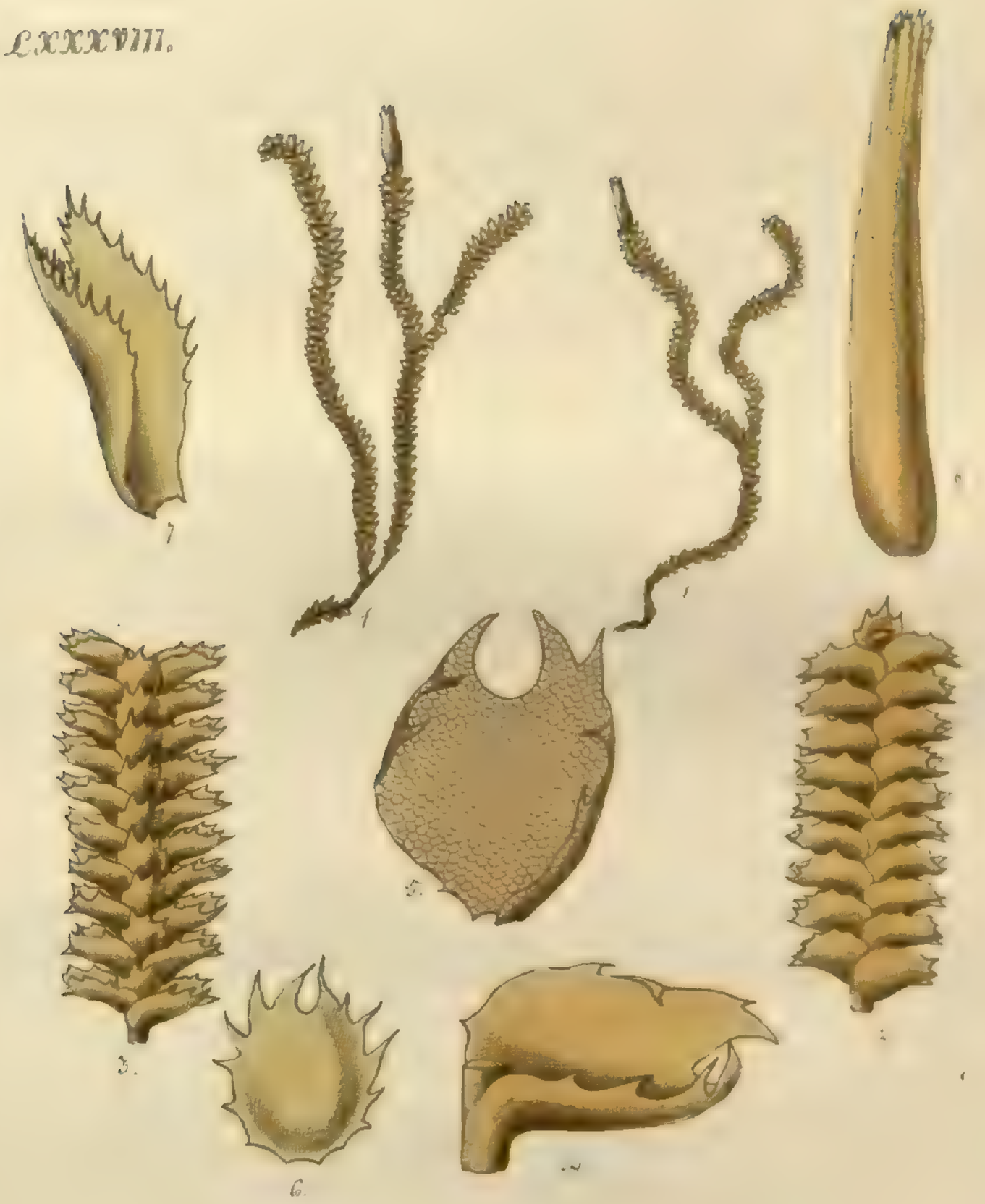
HAB. In subhumidis umbrosis montium altissimorum Jamaicæ. *Swartz.* In Insula Franciæ. *D. Aubert du Petit Thouars.*

Caulis bipollicaris, erectus, flexuosus, dichotome ramosus. *Folia* bifariam inserta, horizontalia, disticha, raro secunda, flavo-lutescentia, horizontalia, concava, atque lateribus incurvis ut fere conduplicata, subrotunda, subundulatis, marginibus spinuloso-dentatis, dentibus distantibus inæqualibus, apice emarginatis; *substantia* compacta, reticuli areolis minutis rotundatis. *Stipulæ* foliis duplo minores, rotundatæ, convexæ, spinoso-dentatæ, apice emarginatæ. *Perichætialia* reliquis similia, sed marginibus ciliato-spinosis. *Calyx* terminalis oblongus, cylindraceus, apice parum plicatus, ore lacerato, laciniis denticulatis.

Schwaegrichen has described the leaves of this *Jungermannia* as quadrifid, though in my specimens they are usually emarginate; but it often happens that near the apices of the segments there arise tooth-like processes so large that the extremity may be considered tri- or quadrifid, or more properly, perhaps, tri- or quadri-dentate. Of *J. Aubertii* Schwaegr. I have received specimens from Du Petit Thouars himself, and have no hesitation in saying it is the same as Swartz's *J. serrulata*, having the leaves, however, somewhat less toothed.

Fig. 1, 1, plants, *nat. size.* Fig, 2, portion of a stem and leaves, superior side. Fig. 3, ditto, inferior side. Fig. 4, 5, leaves. Fig. 6, stipule. Fig. 7. perichætial leaf. Fig. 8, calyx.—*magn.*

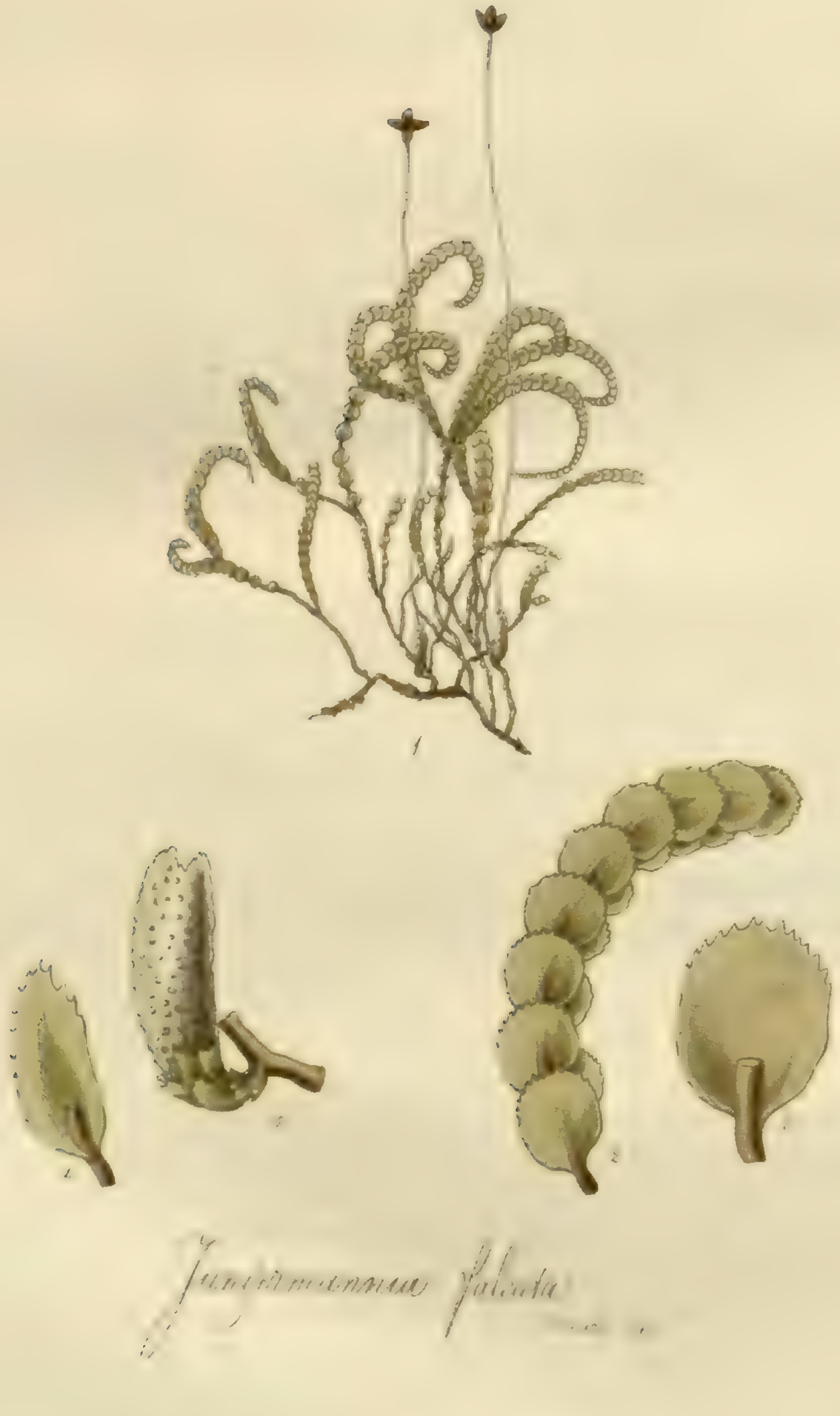
Tab. LXXXVIII.



Jungermannia serrulata

Edwards Sc.

Tab LXXXIX.



Jungermannia palmata

JUNGERMANNIA FALCATA.

Jungermannia caule subrepente, ramis erectis attenuatis insigniter falcatis, foliis erectis bifariis appressis rotundatis denticulatis, calyce laterali ex inferna parte caulis oblonga carnosa, basi squamosa, seta longissima. (TAB. LXXXIX.)

HAB. In sinu Dusky bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caulis procumbens, rigidus, nigro-fuscus, nudus. *Rami* erecti, flexuosi, rigidi, attenuati, dichotome divisi, versus apicem præcipue insigniter incurvati. *Folia* luride viridia, subnitida, bifariam imbricata, erecta, subopposita, cauli appressa, rotundata, plana, ad apicem denticulata, *superiora* sensim minora, atque magis ovata. *Calyx* lateralis, ex inferna parte caulis, oblongus, carnosus, minute tuberculatus, basi attenuatus, squamosus. *Seta* 3-4-pollicaris. *Capsula* ovata.

The remarkable falciform branches of this plant and the great length of the fruitstalk, together with the insertion of the calyx and its texture, will at once distinguish this from every other known species. The leaves approach nearest to those of *J. asplenioides*, as does the general habit of the plant; but the fructification, which is very remarkable, bears a greater resemblance to that of *J. Sphagni*.

Fig. 1, plant, *nat. size*. Fig. 2, portion of branch and leaves. Fig. 3, leaf. Fig. 4, terminal leaf. Fig. 5, calyx.—*magn.*

JUNGERMANNIA ADIANTOIDES.

Jungermannia caule repente, ramis erectis divisis, foliis distichis horizontalibus dimidiato-ovatis denticulato-ciliatis, calyce terminali urceolato, ore compresso fimbriato, seta brevi. (TAB. XC.)

J. adiantoides. *Swartz Fl. Ind. Occ.* p. 1842.

J. annotina. *Menz. MSS.*

HAB. In summis montibus Jamaicæ locis subhumidis umbrosis. *Dr. O. Swartz.* In sinu Dusky bay dicto. *D. Menzies,* 1791.

Caulis repens, flexuosus, rigidus, foliis destitutus. *Rami* rigidi palmares, erecti, iterum divisi, innovationibus præcipue. *Folia* lutescente-viridia, arcte imbricata, horizontalia, disticha, verticalia, dimidiato-ovata, superne convexa, margine inferne recurvo, ubique denticulato-ciliata, basi decurrentia, *superiora* majora. *Substantia* reticulata, areolis minutis, rotundatis. *Perichætialia* magis ovata, calyci appressa. *Calyx* terminalis, urceolatus, basi ventricosus, superne compressus, ore fimbriato. *Seta* calyce vix duplo longior. *Capsula* ovata, nigro-fusca, quadrivalvis.

This species is very nearly allied to *J. spinulosa,* differing from it in the form of the leaves and denticulation, and like that, probably subject to great variations. It well accords with Swartz's description; but among the specimens under that name which I have received from that liberal naturalist are two kinds, which, if they do not differ specifically from the one here described, merit at least a separate figure as very remarkable varieties. Indeed in Mr. Menzies's collection are two other *Jungermanniæ* which I can only find to differ from the present, the one in its smaller size, the other in its almost simple mode of growth, more distantly placed and broader leaves. They are all found in Dusky bay, New Zealand.

Fig. 1, plant, *nat. size.* Fig. 2, portion of stem and leaves, upper surface. Fig. 3, under side of a leaf. Fig. 4, calyx, seta and capsule, with perichætial leaves. Fig. 5, calyx.—*magn.*

Tab XC.

Jungermannia adiantoides.

Tab XCI

Fungiformania conjugata

JUNGERMANNIA CONJUGATA.

Jungermannia caule repente, ramis erectis divisis, foliis erectis bifariis appressis rotundatis spinuloso-dentatis oppositis atque basi utrinque connatis, calyce terminali urceolato, ore compresso ciliato spinoso-dentato, seta brevi. (TAB. XCI.)

HAB. In sinu Dusky bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Caulis repens, flexuosus, sublignosus, denudatus. *Rami* erecti, rigidi, flexuosi, subpinnatim divisi, apice dilatati. *Folia* arcte bifariam imbricata, erecta, cauli appressa, plana, subnitida, rotundata, versus apicem præcipue spinuloso-dentata, opposita, basi utrinque evidentissime connata. *Perichætialia* magis connata, et calyci valde similia, magis spinosa. *Calyx* urceolatus, basi ventricosus, apice compressus, ore ciliato-spinoso.

The fructification of *J. conjugata* greatly resembles that of *J. adiantoides* and *spinulosa*; but a decided mark of discrimination may be found in the leaves, which are truly united at their base all round the stem, and thus the plant becomes perfoliate in a most remarkable degree.

Fig. 1, plant, *nat. size*. Fig. 2, portion of a branch and leaves. Fig. 3, leaves laid open to show their union at the base. Fig. 4, calyx, seta, capsule and perichætial leaves. Fig. 5, calyx.—*magn.*

JUNGERMANNIA RAMOSISSIMA.

Jungermannia caule erecto elongato subfastigiatim ramoso, foliis arcte imbricatis bifariis distichis ovato-rotundatis spinuloso-dentatis, calyce terminali urceolato, ore compresso ciliato-spinoso, seta brevi. (TAB. XCII.)

HAB. In sinu Dusky bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caulis palmaris et ultra, erectus, flexuosus, gracilis, subfastigiatim ramosus, rarius dichotomus. *Folia* arcte imbricata, districha, subopposita, oblique patula, planiuscula, ovato-rotundata, spinuloso-dentata. *Calyx* terminalis, urceolatus, basi ventricosus, apice compressus, ore ciliato-dentato. *Seta* calyce duplo longior. *Capsula* ovata, 4-valvis.

Although the leaves and fructification of *J. ramosissima* resemble very much, at first sight, those of *J. conjugata*, yet they differ not only in their direction, but essentially in their never being connate. To *J. spinulosa* it is even more nearly allied: the foliage however is very dissimilar, the plant is vastly more branched, and there is a peculiar elegance of character arising from the regularity in the size and direction of the leaves which is wholly wanting in the former.

Fig. 1, plant, *nat. size.* Fig. 2, portion of a branch and leaves. Fig. 3, leaves. Fig. 4, calyx and perichætial leaves. Fig. 5, calyx.—*magn.*

Tab. XCV.

Juncus ermannia ramosissima

Tab. XCIII.

Jungermannia gigantea

Bulard Sc.

JUNGERMANNIA GIGANTEA.

Jungermannia caule adscendente fastigiatim ramoso, foliis bifariis distichis rotundato-quadratis denticulato-ciliatis, calyce terminali oblongo, ore dilatato compresso ciliato, seta breviuscula. (TAB. XCIII.)

HAB. In sinu Dusky bay dicto, apud Novam Zeelandiam. *D. Menzies*, 1791.

Caulis spithamæus ad dodrantalem, basi repens, demum erectus, flexuosus, rigidus, niger, crassiusculus, sublignosus, ramosus, ramis fastigiatis patentibus. *Folia* plerumque arcte imbricata, bifaria, disticha, patentia, nigro-viridia, rotundato-quadrata, denticulato-ciliata, margine inferne subintegerrimo. *Substantia* reticulata, areolis parvis, rotundatis. *Perichætialia* reliquorum similia, sed erecta, calyci appressa. *Calyx* terminalis, bi-trilinearis, oblongus, basi cylindracea, apice valde compressa, ore ciliato. *Seta* calyce triplo longior. *Capsula* oblonga, 4-valvis, intense fusca.

Different as this species is in reality from the preceding one, (*J. ramosissima*) yet I have found it very difficult to express this difference clearly in words. The present plant is vastly more stout and robust in all its parts, the stem very rigid and of a black colour. The leaves larger, more horizontal in their direction, more inclined to quadrate, more ciliated, and altogether of a much darker hue. A greater point of distinction may be found in the calyx, which is less urceolate, and in the capsule moreover, which is oblong. The vastly larger size of the plant, repeatedly branched stems, the shorter fruitstalk and more ciliated leaves, are the principal marks which distinguish this from *J. asplenioides*.

Fig. 1, plant, *nat. size*. Fig. 2, leaves with a portion of the stem. Fig. 3, terminal portion of a branch, with the perichætial leaves, calyx, fruitstalk and capsule.—*magn*.

JUNGERMANNIA PULCHELLA.

Jungermannia caule elongato erecto subsimplici, foliis bifariis distichis subquadratis quadrilobis pulcherrime ciliatis, stipulis latis 5-6-lobis ciliatis, calyce terminali oblongo plicato, ore ciliato. (Tab. XCIV.)

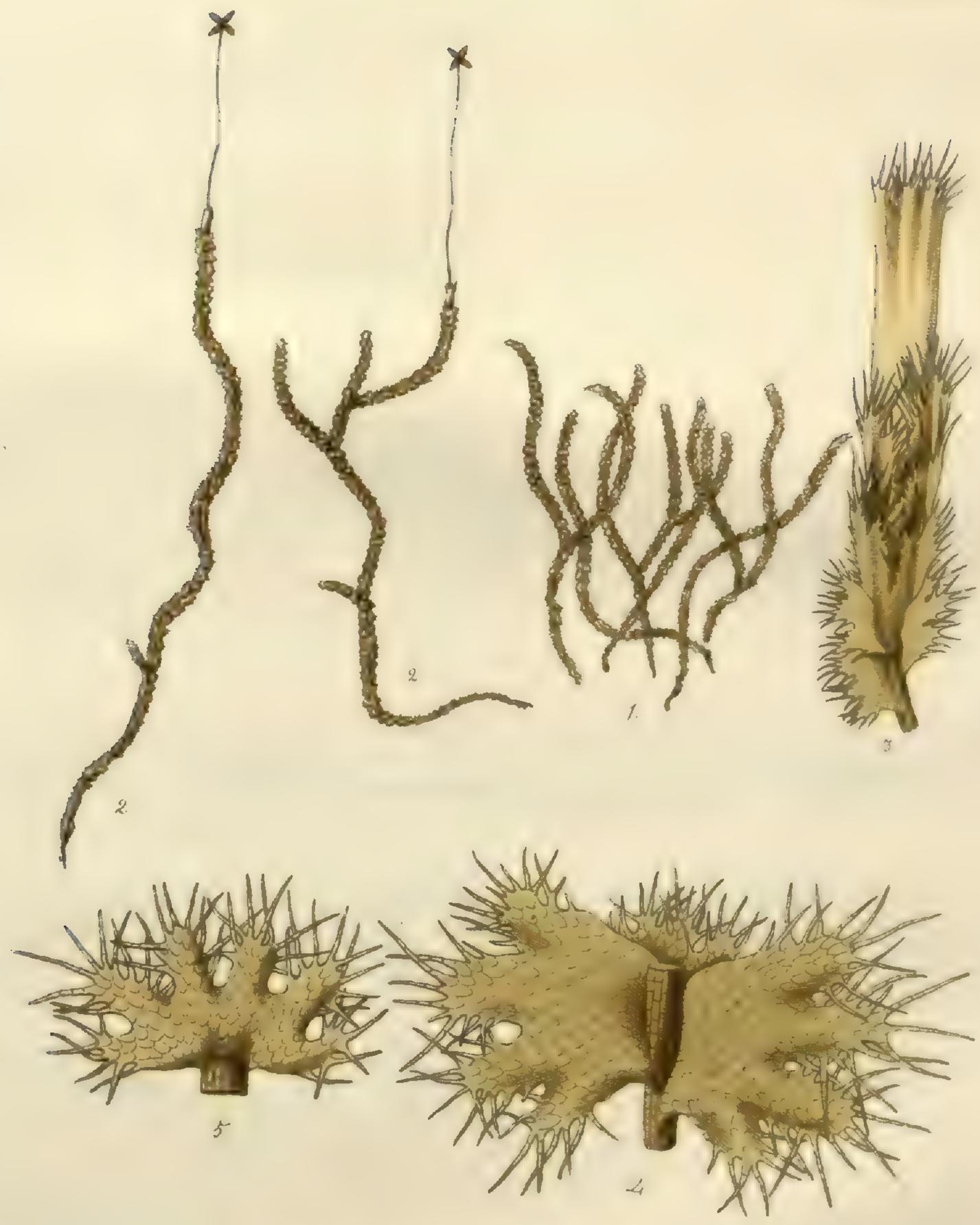
Hab. In sinu Dusky bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Caules laxe cæspitosi, erecti, flexuosi, plerumque simplices, nunc dichotome divisi. *Folia* fusco-ferruginea, arcte imbricata, bifaria, disticha, quadrata vel subrotunda, ad apicem in lobis quatuor plerumque divisa, atque per omnem marginem pulcherrime ciliata, ciliis longis divaricatis, articulatis. *Substantia* laxa, reticulata, areolis oblongis grandiusculis. *Perichætialia* reliquis similia, sed calyci appressa. *Stipulæ* magnæ, lato-quadratæ, 4-6-loba, lobis elegantissime ciliatis. *Calyx* terminalis, oblongo-cylindraceus, ad apicem longitudinaliter plicatus, ore longe ciliato. *Seta* subuncialis. *Capsula* ovata, 4-valvis.

This very elegant plant may be considered to approach nearer to *J. trilobata* than to any other species with which we are at present acquainted, but is at once distinguished from it by its beautifully ciliated leaves and stipules, which give to the whole plant, even when seen by the naked eye, a peculiarly tomentose appearance.

Fig. 1, sterile plants; and Fig. 2, fertile plants, *nat. size.* Fig. 3, extremity of a stem with the perichætial leaves and calyx. Fig. 4, portion of a stem, with leaves and stipules. Fig. 5, stipule.—*magn.*

Tab. XCIV.



Jungermannia pulchella.

Sowerb. Icon.

Tab XCV.

Jungermannia phyllanthus

Edwards Sculpt.

JUNGERMANNIA PHYLLANTHUS.

Jungermannia stipitata, frondibus ovato-lanceolatis simplicibus nervosis integerrimis, fructu e costa superiori frondis basin versus, calyce duplice, *ext.* parvo squamoso, *int.* oblongo cylindraceo carnoso. (TAB. XCV.)

HAB. In sinu Dusky bay dicto, in Nova Zeelandia. *D. Menzies*, 1791.

Caudex repens, hic illic radicibus tomentosis obtectus. *Stipites* plurimi ex eodem caudice subunciales, filiformes, flexuosi, suberecti, glabri vel radicibus tomentosi. *Frons* uncialis fere longa, ovato-lanceolata, carnoso-membranacea, minute reticulata, fusco-viridis, margine undulata, omnino integerrima, basi attenuata, apice obtusa, nervo tenui obscuro percursa. *Fructus* e basi frondis ortus et e parte anteriore nervi. *Calyx* duplex, *ext.* parvus, squamosus, *int.* tres lineas longus, oblongo-cylindraceus, carnosus, fuscus, ore lacerato. *Corolla* cylindracea, membranacea, albida, corporibus pistillæformibus obtecta. *Seta* subbiuncialis. *Capsula* oblongo-cylindracea, fusca, 4-valvis, valvis non raro apicibus cohærentibus.

This species, again, like *J. rhizobola*, is most clearly allied to *J. Lyellii*, and *hibernica*, differing however essentially from them in the presence of a caudex and stipes, in the much thicker texture of the frond, as well as in its different outline.

Fig. 1, sterile plant; and Fig. 2, 2, fertile plants, *nat. size.* Fig. 3, fertile plant. Fig. 4, inner calyx dissected to show the corolla. Fig. 5, portion of a frond.—*magn.*

JUNGERMANNIA HORIZONTALIS.

Jungermannia caule elongato (repente ?) subramoso, foliis distichis horizontalibus ovato-quadratis decurrentibus, basi superiore dilatata, stipulis minutis sublunulatis, calyce laterali ex inferiore parte caulis oblongo-ovato, ore laciniato. (TAB. XCVI.)

HAB. Apud Staten Land, America meridionali. *D. Menzies,* 1787.

Caules bi-tripollicares, (repentes ?) simplices vel per innovationes divisi, fusco-nigricantes. *Folia* bifaria, exacte disticha, horizontaliter patula, arcte imbricata, intense fusca vel rarius fusco-viridia, ovato-quadrata, basi inferiore vel anteriore decurrentia, superiore vel posteriore dilatata, omnino integerrima, reticulata, areolis parvis, rotundatis. *Perichætialia* minuta, suberecta, concava, superiora emarginata. *Stipulæ* valde minutæ, sublunulatæ. *Calyx* in ramulis propriis brevissimis, ex parte inferiore caulis egrediens, lateralis, oblongo-ovatus, ore subcontracto, brevi-laciniato, laciniis denticulatis.

J. horizontalis may be immediately seen to be very nearly indeed allied to a well known British species, *J. polyanthos*, having precisely a similar habit, leaves very nearly the same, and what is more remarkable still, its fructification on short horizontal branches arising from the under part of the stem. There is, however, a very striking difference in the stipules, in the dilated posterior base of the present plant, and also in the colour; this being, in most of the specimens that Mr. Menzies has gathered, of a rich brown. I have seen no individuals possessing perfect fruit; so that whether or not the corolla be exserted beyond the calyx, as in *J. polyanthos*, I am unable to say.

Fig. 1, 1, sterile plants, and Fig. 2, fertile plant, *nat. size.* Fig. 3, portion of a plant, superior side. Fig. 4, underside of a portion of the fertile plant. Fig. 5, leaf. Fig. 6, stipule. Fig. 7, calyx and perichætial leaves.—*magn.*

Tab. XCVI.

Jungermannia horizontalis

Buard. Sculpt.